

Symposium

Day 1 - July 25

Symposium 1S01m 9:00-11:00 Room 1 (4F International Conference Room)

The molecular/cellular mechanisms and the roles of REM sleep in brain functions (tentative)

Chairpersons: Hiroki Ueda *University of Tokyo/RIKEN*
Yu Hayashi *University of Tsukuba*

- 1S01m-1 (9:00)** Identification of neurons regulating REM sleep and insights to the mechanisms of REM sleep behavior disorder
Yu Hayashi
International Institute for Integrative Sleep Medicine (WPI-IIS), Univ of Tsukuba, Tsukuba, Japan
- 1S01m-2 (9:20)** Systems Biology of Mammalian Sleep/Wake Cycles Toward Molecular definition of NREM and REM sleeps
Hiroki R Ueda^{1,2,3}
¹WPI-IRC/N, UTIAS, The University of Tokyo, Japan
²Systems Pharmacology, Graduate School of Medicine, University of Tokyo, Japan ³RIKEN (BDR), Japan
- 1S01m-3 (9:40)** Sleep stage dynamics in dragon hippocampus
Hiroaki Norimoto
Max Planck Institute for Brain Research
- 1S01m-4 (10:00)** Experience and sleep-dependent synapse remodeling
Guang Yang
Columbia Univ
- 1S01m-5 (10:20)** Reactivation of memory engram during REM/nonREM sleep
Kaoru Inokuchi
Univ. of Toyama, Toyama, Japan
- 1S01m-6 (10:40)** Decoding dream contents from human brain activity in REM and non-REM sleep
Yukiyasu Kamitani
Kyoto Univ. Grad. Sch. of Informatics

Symposium 1S02m 9:00-11:00 Room 2 (2F Main HallA)

Roles of epigenetics and inflammation in mental illness

Chairpersons: Tomoyuki Furuyashiki *Kobe University Graduate School of Medicine*
Zhen Yan *School of Medicine and Biomedical Sciences, State University of New York at Buffalo, USA*

- Opening remark (9:00)** Tomoyuki Furuyashiki
Div Pharmacol, Grad Sch Med, Kobe Univ, Kobe, Japan
- 1S02m-1 (9:03)** Epigenetic Rescue of Autism-like Social Deficits in Shank3-Deficient Mice
Zhen Yan
State Univ of New York at Buffalo
- 1S02m-2 (9:31)** Genetic and epigenetic variations of neuronal cells and their implications for psychiatric disorders
Kazuya Iwamoto¹, Miki Bundo^{1,2}, Tadafumi Kato³
¹Grad Sch Med Sci, Dep Mol Brain Sci, Kumamoto University ²PRESTO JST ³RIKEN/CBS
- 1S02m-3 (9:59)** Stress-induced local inflammatory responses in the brain for emotional changes: possible relevance of epigenetic regulation
Tomoyuki Furuyashiki
Div Pharmacol, Grad Sch Med, Kobe Univ, Kobe, Japan

1S02m-4 (10:27) Microglia-focused neuropsychiatric translational research using human bloods; dynamic cellular analysis with induced microglia-like (iMG) cells and various plasma analysis

Takahiro A. Kato, Masahiro Ohgidani, Shigenobu Kanba
Dept Neuropsychiatry, Grad Sch Med Sci, Kyushu Univ, Fukuoka, Japan

Concluding remark (10:55) Zhen Yan
State Univ of New York at Buffalo

Symposium 1S03m

9:00-11:00 Room 3 (2F Main HallB)

Emerging roles of neuropeptides in emotional valence representation for survival

Chairpersons: Yukari Takahashi *Dept Neurosci, Jikei Univ Sch Med*
Mumeko Tsuda *Uniformed Services University of the Health Sciences at Walter Reed Naval Base*

Introduction (9:00) Yukari Takahashi
Dept Neurosci, Jikei Univ Sch Med

1S03m-1 (9:03) Oxytocin modulates emotional tears
Takefumi Kikusui¹, Kaori Murata¹, Toshihiro Imada², Jin Kai², Kazutaka Mogi¹, Miho Nagasawa¹, Shigeru Nakamura², Kazuo Tsubota²
¹*School of Veterinary Medicine, Azabu University* ²*Department of Ophthalmology Keio University School of Medicine*

1S03m-2 (9:30) Male aggression gated by TIP39 signaling in the medial amygdala
Mumeko C Tsuda^{1,2}, Brian Coleman², Maria Perica², Jonathan Kuo², Ted B Usdin²
¹*Uniformed Services University, Bethesda, Maryland, USA*
²*Section on Fundamental Neuroscience, National Institute of Mental Health, Bethesda, Maryland, USA*

1S03m-3 (9:57) Synaptic regulation by CGRP in the nociceptive amygdala
Yukari Takahashi, Yuya Okutsu, Kei Shinohara, Mariko Sugimoto, Yae K Sugimura, Fusao Kato
Dept. Neurosci, Jikei Univ Sch Med

1S03m-4 (10:24) Neuropeptidergic regulation of negative valence and sensory response
Masato Tsuji¹, Kazuo Emoto^{1,2}
¹*Dept. of Biological Sciences, the University of Tokyo, Tokyo, Japan*
²*Neurointelligence International Research Institute (WPI-IRCN), The University of Tokyo, Tokyo, Japan*

Discussion (10:51)

Symposium 1S04m

9:00-11:00 Room 4 (3F 301)

Brain diversity induced by glial heterogeneity

Sponsored by IBRO-APRC Lecturer Exchange Program

Chairpersons: Schuichi Koizumi *Dept Neuropharmacol, Interdisciplinary Grad Sch Med, Univ Yamanashi*
Rieko Muramatsu *Department of Molecular Pharmacology, National Institute of Neuroscience, National Center of Neurology and Psychiatry*

1S04m-1 (9:00) Glial heterogeneity for the neuronal network regeneration
Rieko Muramatsu
Dept Mol Pharmacol, Nat Inst Neurosci, NCNP

1S04m-2 (9:30) Heterogeneity of astrocytes as observed in glycogen distribution
Hajime Hirase^{1,2}, Yuki Oe¹
¹*Lab. for Neuron-Glia Circuitry, RIKEN CBS* ²*CTN, Univ of Copenhagen, Copenhagen, Denmark*

1S04m-3 Astrocytic heterogeneity in modulating sensory signal processing
(10:00) Sun Kwang Kim¹, Sang Jeong Kim², Schuichi Koizumi³, Junichi Nabekura⁴
¹Kyung Hee University College of Korean Medicine ²Seoul National University School of Medicine
³Yamanashi University Faculty of Medicine ⁴National Institute for Physiological Sciences

1S04m-4 Heterogeneity of astrocytes in synapse remodeling
(10:30) Schuichi Koizumi
Dept Neuropharmacol, Grad Sch Med, Univ Yamanashi

Symposium 1S05m

9:00-11:00 Room 5 (3F 302)

Matching matters: Roles of trans-synaptic protein interactions

Sponsored by IBRO-APRC Lecturer Exchange Program

Chairpersons: Kensuke Futai *University of Massachusetts Medical School*
Ji Won Um *Daegu Gyeongbuk Institute of Science and Technology*

1S05m-1 Neuroligin-mediated input-specific homeostatic plasticity
(9:00) Kensuke Futai¹, Motokazu Uchigashima^{1,2}, Takuya Watanabe¹, Amy Cheung¹, Manabu Abe³, Kenji Sakimura³, Masahiko Watanabe²
¹Dept. Neurobiology, Univ. Massachusetts Medical School, Worcester, U.S.A.
²Dept. of Anatomy, Hokkaido Univ., Grad. Sch. of Medicine, Sapporo, Japan
³Dept. Cell Neurobiol., Brain Res. Inst., Niigata Univ., Niigata, Japan

1S05m-2 The C1q complement family proteins and glutamate receptors; bridge over the synaptic cleft
(9:24) Keiko Matsuda
Dept. of Physiology, Keio Univ. Sch. of Medicine, Tokyo, Japan

1S05m-3 Functional roles of synapse organizers in the cerebellum
(9:48) Takeshi Uemura^{1,2,3}
¹Div. of Gene Res., Res. Cent. for Supports to Advanced Science, Shinshu Univ., Nagano, Japan
²IBS-ICCER, Shinshu Univ., Nagano, Japan ³CREST, JST, Saitama, Japan

1S05m-4 Distinct roles of canonical and non-canonical synaptogenic signaling of neuroligin 3
(10:12) Tomoyuki Yoshida¹, Ayako Imai-Tabata¹, Atsushi Yamagata², Hironori Izumi¹, Tomoko Shiroshima², Juhyon Kim³, Masaki Fukata⁴, Keizo Takao⁵, Hisashi Mori¹, Shuya Fukai²
¹Dept Mol Neurosci, Grad Sch of Med and Pharma Sci, Univ of Toyama, Toyama ²Inst Quant Biosci, Univ of Tokyo, Japan
³Dept Bio Info Engineering, Univ of Toyama, Toyama ⁴Div Membrane Physiol, Dept Mol Cell Physiol, NIPS, Aichi, Japan
⁵Life Sci Res Ctr, Univ of Toyama, Toyama

1S05m-5 Postsynaptic Calsyntenin-3 Requires Direct Interactions with Presynaptic Neurexins to Orchestrate Excitatory Synapse Development in the Hippocampus
(10:36) Ji Won Um¹, Hyenho Kim¹, Dongwook Kim¹, Hee-yoon Lee², Hyeeyeon Kang¹, Dongseok Park¹, Soo-Jeong Kim¹, Keiko Matsuda³, Fredrik H Sterky⁴, Michisuke Yuzaki³, Jin Young Kim⁵, Se-Young Choi², Jaewon Ko¹
¹DGIST, Daegu, South Korea ²Seoul National University, Seoul, Korea ³Keio University, Tokyo, Japan
⁴University of Gothenburg, Gothenburg, Sweden ⁵Korea Basic Science Institute, Cheongju, Korea

Symposium 1S06m

9:00-11:00 Room 6 (2F 201A)

Impact of new advances in the DAMPs/alarmins and neuroinflammation researches on diverse neuronal diseases

Chairpersons: Atsufumi Kawabata *Laboratory of Pharmacology and Pathophysiology, Faculty of Pharmacy, Kindai University*
Hitoshi Okazawa *Department of Neuropathology, Medical Research Institute, Tokyo Medical and Dental University*

Introduction Atsufumi Kawabata
(9:00) *Lab Pharmacol Pathophysiol, Fac Pharm, Kindai Univ, Higashi-Osaka, Japan*

- 1S06m-1 (9:03) Sex and cell dependent roles of disulfide HMGB1 in spinal and peripheral pain mechanisms**
Camilla Svensson
Dept. Physiology and Pharmacology, Center for Molecular Medicine, Karolinska Institute, Stockholm, Sweden
- 1S06m-2 (9:28) Role of peripheral HMGB1 and thrombomodulin/thrombin in neuropathic pain**
Atsufumi Kawabata
Lab Pharmacol Pathophysiol, Fac Pharm, Kindai Univ, Higashi-Osaka, Japan
- 1S06m-3 (9:50) Anti-HMGB1 antibody-induced preservation of lesion site and its therapeutic application for spinal cord injury**
Kinichi Nakashima
Dep Stem Cell Biol Med, Grad Sch Med Sci, Fukuoka, Japan
- 1S06m-4 (10:12) Cerebral ischemia-induced non-classical/non-vesicular release of Alarmins and neuroprotection**
Hiroshi Ueda
Dept. of Pharmacol Ther Innov, Nagasaki Univ. Grad. Sch. of Biomed Sci
- 1S06m-5 (10:34) Dynamics of HMGB1 in epileptic status and beneficial effects of systemic injection of anti-HMGB1 mAb**
Masahiro Nishibori¹, Li Fu¹, Hideo Kohka Takahashi², Shuji Mori³
¹Dept of Pharmacol. Okayama Univ. ²Dept of Pharmacol. Kindai Univ ³Dept of Pharmacol. Shujitsu Univ

Symposium 1S02a

14:40-16:40 Room 2 (2F Main HallA)

Neuroscience study based on brain bank networking in Japan for the cure of intractable neuropsychiatric disorders

Chairpersons : Shigeo Murayama *Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology*
Haruhisa Inoue *Center for iPS Cell Research and Application (CiRA), Kyoto University*

Introduction: All Japan Brain Bank Network

- (14:40)** Shigeo Murayama
Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology
- 1S02a-1 (15:00) Research and development of neurodegenerative diseases based on the all Japan Brain Bank Network**
Hitoshi Okazawa
Center for Brain Integration Research, Tokyo Medical and Dental Univ.
- 1S02a-2 (15:30) TDP-43 and DISC1 Co-Aggregation Disrupts Dendritic Local Translation and Mental Function in FTL D**
Ryo Endo¹, Noriko Takashima¹, Yoko Nekooki-Machida¹, Yusuke Komi¹, Kelvin Kai-Wan Hui¹, Masaki Takao^{2,3}, Hiroyasu Akatsu^{5,6}, Shigeo Murayama², Akira Sawa⁴, Motomasa Tanaka¹
*¹Lab. for Protein Conformation Diseases, RIKEN CBS, Saitama, Japan
²Dept. of Neuropathology, Tokyo Metropolitan Geriatric Hospital & Inst. of Gerontology, Tokyo Japan
³Dept. of Neurology, Saitama Medical Univ. ⁴Dept. of Psychiatry, Johns Hopkins Univ. Sch. of Medicine, Baltimore, USA
⁵Choju Medical Inst. Fukushima Hospital, Aichi, Japan
⁶Dept. of Medicine for Aging in Place and Community-Based Medical Nagoya City Univ. Graduate Sch. of Medical Sciences, Nagoya, Aichi, Japan*
- 1S02a-3 (16:00) From rare to common neurological diseases using iPSCs**
Haruhisa Inoue^{1,2,3}
*¹Center for iPS Cell Research and Application, Kyoto University, Kyoto, Japan
²RIKEN BioResource Research Center, Kyoto, Japan ³RIKEN Center for Advanced Intelligence Project, Kyoto, Japan*

How to apply to BB?

- (16:30)** Shigeo Murayama
Tokyo Metropolitan Geriatric Hospital and Institute of Gerontology

Symposium 1S03a

14:40-16:40 Room 3 (2F Main HallB)

Molecular and circuit mechanisms in physiological and pathological decision-making behavior

Chairpersons: Takatoshi Hikida *Osaka University Institute for Protein Research*
 Sarah King *University of Sussex*

- 1S03a-1 (14:40) A role for nucleus accumbens D1-/D2-neuron pathways in controlling learning impaired in psychiatric disorders**
 Tom Macpherson, Takatoshi Hikida
Osaka University Institute for Protein Research
- 1S03a-2 (15:10) Mesostriatal gating of cue-triggered motivation**
 Benjamin Saunders
University of Minnesota
- 1S03a-3 (15:40) Manipulating GABA_A receptors: Cocaine potentiation of conditioned responding**
 Sarah L King¹, Marsha M Sindarto¹, Jonathan Robertson¹, Tom Macpherson^{1,2}, Dai N Stephens¹
¹*School of Psychology, University of Sussex, Brighton, BN1⁹QG, United Kingdom*
²*Laboratory for Advanced Brain Functions, Institute for Protein Research, Osaka University, Japan*
- 1S03a-4 (16:10) Physiological centers of decision-making in addiction: the insular cortex and striatum**
 Hiroyuki Mizoguchi¹, Kiyofumi Yamada²
¹*Res. Ctr. Next-Generation Drug Dev., Res. Inst. Environmental Med., Nagoya Univ.*
²*Dep. Neuropsychopharmacol. Hosp. Pharm., Nagoya Univ. Grad. Sch. Med.*

Symposium 1S04a

14:40-16:40 Room 4 (3F 301)

Understanding the homeostatic maintenance mechanisms and logistics of cellular community in the brain "Brain Infrastructure"

Chairpersons: Taisuke Tomita *Laboratory of Neuropathology and Neuroscience, Graduate School of Pharmaceutical Sciences, The University of Tokyo*
 Takashi Saito *Laboratory for Proteolytic Neuroscience, RIKEN Center for Brain Science*

- 1S04a-1 (14:40) Neuroimmune system associated with brain development and degeneration**
 Shogo Tanabe
Dept. Mol Pharmacol, National Inst. of Neurosci, NCNP, Tokyo, Japan
- 1S04a-2 (15:00) Complementarity between microglia and astrocytes in phagocytosis**
 Hiroyuki Konishi¹, Katsuaki Sato², Hiroshi Kiyama¹
¹*Dept Funct Anat Neurosci, Nagoya Univ Grad Sch Med, Nagoya, Japan*
²*Div Immunol, Dept Infecti Dis, Facult Med, Univ of Miyazaki*
- 1S04a-3 (15:20) Neuron-glia interaction in synapse elimination**
 Ryuta Koyama
Lab Chem Pharmacol, Grad Sch Pharm Sci, Univ of Tokyo, Tokyo
- 1S04a-4 (15:40) Molecular mechanisms of microglial recognition and response to amyloid β**
 Sho Takatori¹, Akihiro Iguchi¹, Shingo Kimura¹, Junko Sasaki², Takehiko Sasaki², Toshiyuki Takai³, Takashi Saito⁴, Takaomi C Saido⁴, Taisuke Tomita¹
¹*Lab Neuropathol Neurosci, Grad Sch Pharm Sci, Univ Tokyo, Tokyo, Japan*
²*Dept Pathophysiol, Med Res Inst, Tokyo Med and Dent Univ, Tokyo*
³*Dept Experimental Immunol, IDAC, Univ of Tohoku, Miyagi* ⁴*Lab Proteolytic Neurosci, RIKEN CBS*
- 1S04a-5 (16:00) Brain Environment Protected by Glutathione and Alzheimer's disease**
 Shoko Hashimoto, Yukio Matsuba, Naoko Kamano, Takashi Saito, Takaomi C Saido
Lab. for Proteolytic Neuroscience, RIKEN Center for Brain Science
- 1S04a-6 (16:20) In vivo multiscale imaging of glymphatic clearance of tau and alpha-synuclein from the brain**
 Hiroyuki Takuwa
National Institutes for Quantum and Radiological Science

Information Processing in Offline Brain

Chairpersons: Hiroaki Norimoto *Max Planck Institute for brain research*
Shoi Shi *Graduate School of Medicine, University of Tokyo*

- 1S05a-1 (14:40) Sleep phenotype of cortical layer 5 silenced mouse**
Tomoko Yamagata¹, Lukas B Krone^{1,2}, Anna Hoerder-Suabedissen², Zoltán Molnár², Vladyslav V Vyazovskiy^{1,2}
¹SCNi, NDCN, Univ Oxford, Oxford, UK ²DPAG, Univ Oxford, Oxford, UK
- 1S05a-2 (15:00) Control mechanism by spiking patterns for transmission of circadian clock and homeostasis during sleep in *Drosophila***
Masashi Tabuchi¹, Joseph D Monaco², Kechen Zhang², Mark N Wu¹
¹Dept Neurology, Johns Hopkins Medicine, Baltimore, USA ²Dept Biomed Eng, Johns Hopkins Medicine, Baltimore, USA
- 1S05a-3 (15:20) Daily torpor in mice as a model of active hypometabolism in mammals**
Genshiro A. Sunagawa
Laboratory for Retinal Regeneration, RIKEN Center for Biosystems Dynamics Research
- 1S05a-4 (15:40) The role of sleep hippocampal ripples for memory consolidation**
Gabrielle Girardeau
Institut du Fer-a-Moulin, Inserm, Sorbonne Universite
- 1S05a-5 (16:00) Cuttlefish behavior at cellular resolution reveals spontaneous neural activity**
Sam Reiter
Max Planck Institute for Brain Research
- 1S05a-6 (16:20) Understanding the role of Ca²⁺-dependent hyperpolarization pathway in sleep homeostasis**
Shoi Shi^{1,2,3}, Hiroki R. Ueda^{1,2,3}
¹Department of Systems Pharmacology Graduate School of Medicine, The University of Tokyo, Tokyo, Japan
²Laboratory for Synthetic Biology, RIKEN Center for Biosystems Dynamics Research, Osaka, Japan
³International Research Center for Neurointelligence, The University of Tokyo Institutes for Advanced Study, The University of Tokyo, Tokyo, Japan

"Towards integration of neuroscience and machine intelligence"

Chairpersons: Okito Yamashita *Center for advanced intelligence project*
Yoshinobu Kawahara *The Institute of Scientific and Industrial Research, Osaka University*

- 1S06a-1 (14:40) Impact of machine learning on human imaging research**
Okito Yamashita^{1,2}
¹RIKEN, Advanced Intelligence Project, Kyoto, Japan ²ATR, Neural Information Analysis Laboratories, Kyoto, Japan
- 1S06a-2 (14:50) Classification from weak supervision**
Takashi Ishida
Dept. of Complexity Sci and Eng, Grad Sch of Frontier Sci, Univ of Tokyo, Japan
- 1S06a-3 (15:12) Biologically Inspired Representation Learning for Deep Neural Networks**
Takashi Shinozaki^{1,2}
¹NICT ²Osaka Univ.
- 1S06a-4 (15:34) On the role of chaos in reservoir computing**
Kohei Nakajima
Grad. Sch. of Information Science and Technology, The Univ of Tokyo, Tokyo
- 1S06a-5 (15:56) Topological complexity in the brain: Fragility, volatility, and a hierarchy of timescales**
Leonardo Gollo
Systems Neuroscience Group, QIMR Berghofer Medical Research Institute, Brisbane, Australia

1S06a-6 Data-driven Analysis of Nonlinear Dynamical Systems Based on Operator-theoretic Methods**(16:18)**Yoshinobu Kawahara^{1,2}¹*Institute of Mathematics for Industry, Kyushu University, Fukuoka, Japan*²*Center for Advanced Intelligence Project, RIKEN, Tokyo, Japan***Symposium 1S07a****14:40-16:40 Room 7 (2F 201B)****ELSI for Social Implementation of Neurotechnology*****in Japanese****Symposium on Industry-Academia**Chairpersons: Manabu Honda *Japan Neuroscience Society Industry-Academia Partnership Committee*Manabu Honda¹, Hisamichi Okamura², Eisuke Nakazawa³, Koji Morikawa⁴, Junichi Ushiba⁵, Runa Koike⁶¹*Japan Neuroscience Society Industry-Academia Partnership Committee* ²*Cyber Law Japan Eichi Law Offices*³*Graduate School of Medicine and Faculty of Medicine, The University of Tokyo*⁴*Panasonic Technology Innovation Division* ⁵*Faculty of Science and Technology, Keio University*⁶*NTT DATA INSTITUTE OF MANAGEMENT CONSULTING***Symposium 1S02e****16:50-18:50 Room 2 (2F Main HallA)****Simple is Best. Study of neurological disorders and regeneration using invertebrate models**Chairpersons: Atsushi Sugie *Center for Transdisciplinary Research, Niigata University*Shinsuke Niwa *Tohoku University, Frontier Research Institute for Interdisciplinary Sciences***1S02e-1 Disease-associated mutations in human KIF1A overactivate motility of KIF1A and anterograde axonal transport of synaptic vesicle precursors****(16:50)**

Shinsuke Niwa

*FRIS, Tohoku Univ., Miyagi, Japan***1S02e-2 C. elegans Tensin regulates axon regeneration via Met-like signaling****(17:10)**

Naoki Hisamoto, Kazuma Asai, Tatsuhiko Shimizu, Yoshiki Sakai, Strahil Iv Pastuhov, Hiroshi Hanafusa, Kunihiro Matsumoto

*Dept Biol Sci, Grad Sch Sci, Nagoya Univ, Nagoya Japan***1S02e-3 Efficient research on neurodegenerative diseases using *Drosophila* models****(17:30)**

Yoshitaka Nagai

*Dept Neurotherapeutics, Osaka Univ Grad Sch of Med, Japan***1S02e-4 Proteostasis in aging and neurodegenerative diseases****(17:50)**

Mari Suzuki

*Diabetic Neuropathy Proj, Tokyo Met Inst Med Sci, Tokyo, Japan***1S02e-5 Visualization of organelles and ultrastructures in the fly brain using three-dimensional electron microscopy****(18:10)**

Kazunori Shinomiya, Patricia K Rivlin, Stephen M Plaza

*HHMI Janelia Research Campus, Ashburn, VA, USA***1S02e-6 Elucidation of neurodegenerative process with impairment of intercellular communication using *Drosophila* model****(18:30)**Atsushi Sugie¹, Melisande Richard², Yohei Nitta¹, Gaia Tavosanis², Takashi Suzuki³¹*Transdisc Res Prog, Niigata Univ, Niigata, Japan* ²*German Center for Neurodegenerative Diseases (DZNE), Bonn, Germany*³*School of Life Science and Technology, Tokyo Institute of Technology, Yokohama, Japan.*

Neuronal Substrates of Episodic Memory ~ from physiology to circuits

Chairpersons: Kazumasa Tanaka *RIKEN Center for Brain Science*
Takashi Kitamura *University of Texas, Southwestern, Medical Center*

Introduction Kazumasa Z Tanaka(16:50) *Lab. for Circuit and Behavioral Physiol., RIKEN CBS***1S03e-1 Cortical Sensory Modulation of Hippocampal Activity and Spatial Representation**(16:55) Jayeeta Basu, Olesia Bilash, Roland Zemla
*New York University Neuroscience Institute, New York, USA***1S03e-2 Dynamics of Hippocampal - Entorhinal Memory System in Mice**(17:13) Jun Yamamoto
*Dept Psychiatry Neurosci Div, Univ Texas Southwestern Medical Ctr, Dallas, Texas, USA***1S03e-3 Dentate granule cells recruit feedforward inhibition to govern engram maintenance and remote memory generalization**Nannan Guo^{1,2}, Marta E Soden³, Charlotte Herber^{1,2}, Michale Kim^{1,2}, Antoine Besnard^{1,2}, Paoyan Lin^{1,2}, Constance L Cepko⁴, Larry S Zweifel³, Amar Sahay^{1,2,5}¹Harvard Medical School, Boston ²Center for Regenerative Medicine, Massachusetts General Hospital, Boston³Department of Pharmacology, Department of Psychiatry and Behavioral Sciences, University of Washington, Seattle⁴Howard Hughes Medical Institute, Department of Genetics, Harvard Medical School, Boston⁵BROAD Institute of Harvard and MIT, Cambridge**1S03e-4 Heterogeneous memory traces in the hippocampus**(17:49) Kazumasa Z Tanaka¹, Hongshen He^{1,2}, Anupratap Tomar¹, Kazue Niisato¹, Arthur J.Y. Huang¹, Thomas McHugh^{1,2}¹Lab. for Circuit and Behavioral Physiol., RIKEN CBS ²Dept. of Life Sci, Univ of Tokyo, Tokyo**1S03e-5 Emergence of memory engrams in the rodent hippocampus**(18:07) Marlene Bartos
*University of Freiburg***1S03e-6 Hippocampal circuit mechanisms for self-recognition**(18:25) Takashi Kitamura, Jun Yokose
*University of Texas Southwestern Medical Center***Discussion**

(18:43)

From sensory systems to goal-directed social behaviors

Chairpersons: Saori Yokoi *Faculty of Pharmaceutical Sciences, Hokkaido University*
Azusa Kamikouchi *Graduate School of Science, Nagoya University*

Introduction Azusa Kamikouchi(16:50) *Graduate School of Science, Nagoya University***1S04e-1 Evolution of neural circuit for chemical communication in *Drosophila***(16:55) Yuki Ishikawa, Naoki Maeda, Azusa Kamikouchi
*Grad. Sch. of Science, Nagoya Univ., Nagoya***1S04e-2 Analysis of molecular/neural basis underlying decision making according to social familiarity in small fish, medaka**(17:15) Saori Yokoi
Dept. of Pharmacology, Grad. Sch. of Pharmaceutical Sciences, Hokkaido Univ.

1S04e-3 Neural circuits underlying experience-dependent behavioral changes**(17:35)**

Hiroshi Nomura

*Dept Pharmacol, Grad Sch Pharm Sci, Hokkaido Univ, Sapporo, Japan***1S04e-4 Neural representation of sexual behavior in hypothalamus****(17:55)**Tomomi Karigo¹, Bin Yang¹, Ann Kennedy¹, David J Anderson^{1,2}¹*Division of Biology and Biological Engineering, California Institute of Technology, Pasadena, USA*²*Howard Hughes Medical Institute, California Institute of Technology, Pasadena, USA***1S04e-5 Investigation of brain mechanisms for primate parental behavior****(18:15)**Kazutaka Shinozuka¹, Saori Nashimoto Yano¹, Chihiro Yoshihara¹, Anna Truzzi², Gianluca Esposito², Kenichi Tokita³, Sayaka Shindo¹, Dai Watanabe⁴, Ryosuke Matsui⁴, Atsuko Saito⁵, Kumi Kuroda¹¹*Lab. for Affiliative Social Behavior, RIKEN CBS* ²*Dept Psychol and Cognitive Sci, Univ of Trento, Trento, Italy*³*School of Law, Senshu Univ, Kanagawa, Japan* ⁴*Dept Biological Sci, Kyoto Univ, Kyoto, Japan*⁵*Dept Psychol, Sophia Univ, Tokyo, Japan***Discussion** Saori Yokoi**(18:35)***Faculty of Pharmaceutical Sciences, Hokkaido University***Symposium 1S05e****16:50-18:50 Room 5 (3F 302)****Recent Progress in Gonadal Steroid Action on the Modulation of Multiple Brain Functions and Behaviors**Chairpersons: Sonoko Ogawa *Lab Behavioral Neuroendocrinology, Faculty of Human Sciences, University of Tsukuba*
Nandini Vasudevan *University of Reading, UK***Introduction** Sonoko Ogawa**(16:50)***Lab Behavioral Neuroendocrinology, Faculty of Human Sciences, University of Tsukuba***1S05e-1 Non-genomic signaling by estrogens via the G-protein coupled estrogen receptor 1 (GPER1) are important for social behaviours****(16:55)**

Nandini Vasudevan, DeAsia Davis, Ruby Vajaria, Evangelos Delivopoulos

*University of Reading, UK***1S05e-2 Latent Sex Differences in Acute Estradiol Modulation of Excitatory Synapses in the Hippocampus****(17:20)**

Catherine S Woolley

*Northwestern University***1S05e-3 Sexual differentiation of calbindin neuron in the preoptic area****(17:45)**

Shinji Tsukahara

*Div Life Sci, Grad Sch Sci Engin, Saitama Univ, Saitama, Japan***1S05e-4 Innate immune cells are crucial regulators of hormonally-driven sexual differentiation of brain and motivated behavior****(18:05)**

Kathryn M Lenz

*Dept. Psychology, Dept. Neuroscience, The Ohio State University, Columbus, Ohio, USA***1S05e-5 The role of estrogen receptors in the regulation of male and female social behaviors.****(18:30)**

Kazuhiro Sano, Tetsu Hatsukano, Sonoko Ogawa

Lab Behavioral Neuroendocrinology, Univ. of Tsukuba, Tsukuba city Japan

Whole brain physiology by a combination of fMRI and neurophysiology in rodents

Chairpersons: Norio Takata *Keio University School of Medicine*
Akira Sumiyoshi *NIDA-IRP, NIH*

- Introduction** Norio Takata
(16:50) *Dept Neuropsychiatry, Keio Univ Sch of Med, Tokyo, Japan*
- 1S06e-1** Exploring a relationship between resting state networks in the brain and a novel oscillatory activity of the thalamic reticular nucleus
(16:55) Norio Takata
Dept Neuropsychiatry, Keio Univ Sch of Med, Tokyo, Japan
- 1S06e-2** Rat fMRI in combination with in vivo neurophysiological techniques
(17:18) Akira Sumiyoshi^{1,2,3}
¹*National Institutes for Quantum and Radiological Science and Technology, Chiba, Japan*
²*National Institute on Drug Abuse, National Institutes of Health, Baltimore, MD, USA*
³*Institute of Development, Aging, and Cancer, Tohoku University, Sendai, Japan*
- 1S06e-3** Visualizing whole-brain activity in the mouse with functional Magnetic Resonance Imaging
(17:41) Joanes Grandjean
Singapore Bioimaging Consortium
- 1S06e-4** Resting-state functional-connectivity investigation of the neural substrates of psychiatric disorders
(18:04) Noriaki Yahata
Nat Inst of Radiol Sci, Nat Inst's for Quantum and Radiol Sci and Tech, Chiba, Japan
- 1S06e-5** Circuits of depression in rodent functional connectivity MRI
(18:27) Alexander Sartorius¹, Wolfgang Weber-Fahr², Natalia Gass², Christian Clemm von Hohenberg²
¹*Central Institute of Mental Health, Uni Heidelberg*
²*Workgroup Translational Imaging, Dept. Neuroimaging, Central Institute of Mental Health, Mannheim, University of Heidelberg*

New trends in study on plasticity-related gene Arc/arg3.1: regulations and cognitive functions

Sponsored by Grant-in-Aid for Scientific Research on Innovative Areas "Brain information dynamics underlying multi-area interconnectivity and parallel processing"

Chairpersons: Hiroyuki Okuno *Kagoshima University Graduate School of Medical and Dental Sciences*
Kasia Radwanska *Nencki Institute of Experimental Biology of Polish Academy of Sciences*

- Introduction** Hiroyuki Okuno¹, Kasia Radwanska²
(16:50) ¹*Kagoshima University Graduate School of Medical and Dental Sciences*
²*Nencki Institute of Experimental Biology of Polish Academy of Sciences*
- 1S07e-1** Arc/Arg3.1-driven regulation of activity-dependent AMPA receptor dynamics at active and inactive synapses
(16:52) Haruhiko Bito^{1,2}, Yuichiro Ishii¹, Hajime Fujii¹, Takashi Hayashi^{1,3}, Michiko Okamura¹, Yayoi Kondo¹, Manabu Abe⁴, Kenji Sakimura⁴, Hiroyuki Okuno⁵
¹*Dept Neurochem, Univ of Tokyo, Japan* ²*IRCIN-WPI, Univ of Tokyo, Japan* ³*Natl Cntr Neurol Psychiat, Tokyo, Japan*
⁴*Brain Res Inst, Niigata Univ, Niigata, Japan* ⁵*Dept of Biochem Mol Biol, Kagoshima Univ Grad Sch Med Dent Sci*
- 1S07e-2** Arc protein structure and oligomerization control: from synaptic plasticity to retroviral-like capsids
(17:16) Clive Bramham
University of Bergen

- 1S07e-3 (17:40) The Temporal Dynamics of Arc Expression Regulate Cognitive Flexibility**
Angela M Mabb
Georgia State University, Atlanta, United States
- 1S07e-4 (18:04) The role of Arc/Arg3.1 protein in the regulation of alcohol seeking**
Kasia Radwanska
Nencki Institute of Experimental Biology, PAS
- 1S07e-5 (18:28) Arc deficiency causes impairment in memory precision and cognitive switching**
Hiroyuki Okuno
Dept. of Biochem and Mol Biol, Kagoshima Univ, Kagoshima, Japan

Symposium 1S10e 16:50-18:50 Room 10 (Bandaijima Building 6F Meeting Room)

The future of glia research viewed by young glial researchers

Wakate Dojo Symposium

Chairpersons: Yoshinori Otani *Faculty of Medicine, Shimane University*
Yuki Fujita *Osaka University*

- 1S10e-1 (16:50) Glia world: Frontier of the brain science developed by Ca²⁺ imaging**
Yoshihisa Kudo
Hachioji Med.Center, Tokyo Med. Univ. Hachioji, Tokyo, Japan
- 1S10e-2 (17:10) Astrocytes and meta-communication keep the brain healthy**
Hiromu Monai^{1,2}
¹*Ochanomizu Univ, Tokyo, Japan*
²*Lab. for Neuron-Glia Circuitry, RIKEN CBS*
- 1S10e-3 (17:38) Neuroprotective function of microglia in the developmental brain**
Yuki Fujita^{1,2}, Toru Nakanishi^{1,3}, Masaki Ueno⁴, Toshihide Yamashita^{1,2,3,5}
¹*Dept. of Molecular Neuroscience, Grad. Sch. of Medicine, Osaka Univ., Osaka, Japan*
²*WPI Immunology Frontier Research Center, Osaka Univ., Osaka, Japan*
³*Grad Sch of Frontier Biosci, Osaka Univ, Osaka, Japan* ⁴*Brain Research Inst., Niigata Univ., Niigata, Japan*
⁵*Neuro-Medical Science, Grad. Sch. of Medicine, Osaka Univ., Osaka, Japan*
- 1S10e-4 (18:06) Control of myelin formation and function by translational readthrough**
Yoshinori Otani^{1,2}, Nobuhiko Ohno³, Yoshihide Yamaguchi¹, Jing-Jing Cui¹, Hiroko Baba¹
¹*Department of Molecular Neurobiology, Tokyo University of Pharmacy and Life Sciences, Hachioji, Japan*
²*Faculty of medicine, Department of Anatomy and Neuroscience, Shimane University, Izumo, Japan*
³*Department of Anatomy, Division of Histology and Cell Biology, School of Medicine, Jichi Medical University, Shimono, Japan*
- Discussion (18:34)**

Symposium 2S01m 8:30-10:30 Room 1 (4F International Conference Room)

Breakthroughs to be made for the next Brain Science***in Japanese** The President of the Annual Meeting - organized symposia

Organizers : Hitoshi Okamoto *RIKEN Center for Brain Science*
 Hiroyuki Nawa *Brain Research Institute, Niigata University*

Chairpersons : Hitoshi Okamoto *RIKEN Center for Brain Science*
 Takashi Kitamura *University of Texas, Southwestern, Medical Center*

Introduction Hitoshi Okamoto
(8:30) *Lab. for Neural Circuit Dynamics of Decision Making, RIKEN CBS*

2S01m-1 **Systemic environment regulates central nervous system regeneration**
(8:33) Rieko Muramatsu
National Center for Neurology and Psychiatry, Kodaira, Japan

2S01m-2 **Breakthroughs in Alzheimer's disease research**
(8:50) Kei Igarashi
Univ of California Irvine, Irvine, USA

2S01m-3 **Lessons from research in artificial intelligence**
(9:07) Hiroshi Makino
Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore

2S01m-4 **Spatio-Temporal resolution issues for "observation" and "manipulation"**
(9:24) Teruhiro Okuyama
Inst Quantitative Biosciences (IQB), Univ of Tokyo, Tokyo, Japan

2S01m-5 **Toward comprehensive understanding of the brain-wide neuronal network and beyond**
(9:41) Fumi Kubo
National Inst. of Genetics, Mishima, Japan

2S01m-6 **Exploring biological basis of Self**
(9:58) Yutaka Komura
Kokoro Res Ctr, Kyoto Univ, Kyoto

Discussion
(10:15)

Symposium 2S02m 8:30-10:30 Room 2 (2F Main HallA)

The Addicted brain-From substance abuse to gambling and gaming disorders

ISN/JSN Joint Symposium

Chairpersons : Akio Wanaka *Department of Anatomy and Neuroscience, Nara Medical University*
 Andrew J Lawrence *Florey Institute of Neuroscience & Mental Health, Melbourne Brain Centre,
 University of Melbourne*

Introduction Akio Wanaka¹, Andrew Lawrence²
(8:30) ¹*Department of Anatomy and Neuroscience, Nara Medical University*
²*Florey Institute of Neuroscience & Mental Health*

2S02m-1 **Neural mechanisms underlying stress-included enhancement of cocaine craving**
(8:35) Katsuyuki Kaneda
Lab Mol Pharmacol, Kanazawa Univ

2S02m-2 Identifying novel therapeutic targets for relapse prevention**(9:03)**

Andrew Lawrence

*Florey Institute of Neuroscience & Mental Health***2S02m-3 Goal-directed versus Stimulus-driven control in Gaming Disorders****(9:31)**Young-Chul Jung^{1,2}¹*Yonsei University College of Medicine, Department of Psychiatry*²*Yonsei University College of Medicine, Institute of Behavioral Science in Medicine***2S02m-4 Neuroimaging of gambling disorder****(9:59)**

Hidehiko Takahashi

*Dept. Psychiatry and Behavioral Sciences, Tokyo Med Dent Univ, Tokyo, Japan***Discussion****(10:27)****Symposium 2S03m****8:30-10:30 Room 3 (2F Main HallB)****Being Adaptive: The Role of Metacognition in Learning and Guiding Behavior**Chairpersons: Aurelio Cortese *ATR Institute International*
Mahiko Konishi *Ecole Normale Superieure, Paris, France***Introduction** Mahiko Konishi**(8:30)***Ecole Normale Superieure***2S03m-1 What optimal and suboptimal metacognitive computations can tell us about adaptive behavior****(8:35)**

Megan Peters

*University of California Riverside***2S03m-2 Metacognitive control of sensory evidence accumulation****(9:00)**Tarryn Balsdon^{1,2}, Valentin Wyart², Pascal Mamassian¹¹*LSP, DEC, ENS, PSL University, CNRS, Paris, France* ²*LNC, DEC, ENS, PSL University, INSERM, Paris, France***2S03m-3 Metacognition is spared in a dual-task visual paradigm****(9:25)**Mahiko Konishi¹, Clemence Compain¹, Jerome Sackur¹, Vincent de Gardelle²¹*Ecole Normale Superieure*²*Paris School of Economics and CNRS***2S03m-4 Metacognition simplifies reward-based learning in complex, uncertain scenarios****(9:50)**Aurelio Cortese¹, Hakwan Lau^{2,3}, Mitsuo Kawato¹¹*ATR Computational Neuroscience Lab, Kyoto, Japan* ²*Dept. of Psychology, Univ of Hong Kong, Hong Kong*³*Dept. of Psychology, UCLA, Los Angeles, USA***Discussion** Aurelio Cortese¹, Mahiko Konishi²**(10:15)**¹*ATR Computational Neuroscience Lab, Kyoto, Japan*²*Ecole Normale Superieure***Symposium 2S04m****8:30-10:30 Room 4 (3F 301)****Singularity Brain Science – toward discovery of singularity in brain system by massive trans-scale imaging –**Chairpersons: Hiroko Bannai *Dept Physiol, Keio Univ Sch of Medicine, Tokyo, Japan*
Takeharu Nagai *ISIR, Osaka Univ***2S04m-1 What is "Singularity Biology"?****(8:30)**

Takeharu Nagai

ISIR, Osaka Univ

- 2S04m-2 (8:53) Approach to neurodegenerative disease by singularity biology**
 Hiroko Bannai^{1,2}, Michio Hiroshima³, Akihiko Takashima⁴
¹Dept Physiol, Keio Univ Sch of Medicine, Tokyo, Japan ²JST ERATO, Saitama, Japan ³RIKEN BDR, Osaka, Japan
⁴Faculty Sci, Gakushuin Univ, Tokyo, Japan
- 2S04m-3 (9:16) High-speed and scalable whole-brain imaging for finding singularity in the brain**
 Kaoru Seiriki^{1,2}, Atsushi Kasai¹, Takanobu Nakazawa^{1,3}, Hitoshi Hashimoto^{1,4,5,6}
¹Grad. Sch. of Pharmaceutical Sciences, Osaka Univ., Osaka, Japan
²Inst. Transdisciplinary Grad. Degree Programs, Osaka Univ., Osaka, Japan
³Dept Pharmacol., Grad. Sch. of Dentistry, Osaka Univ., Osaka, Japan
⁴Mol Res Cent for Child Mental Development, United Grad Sch of Child Development, Osaka-Kanazawa-Hamamatsu Univ Sch Med, Osaka
⁵Div. Biosci., Inst. Datability Sci., Osaka Univ., Osaka, Japan
⁶Transdimensional Life Imaging Div., Inst. Open and Transdisciplinary Res. Initiatives, Osaka Univ. Osaka, Japan
- 2S04m-4 (9:39) A challenging imaging technology for singularity brain science**
 Tomonobu Watanabe
 Lab. for Comprehensive Bioimaging, RIKEN BDR
- 2S04m-5 (10:22) Near-infrared upconversion optogenetics and nanoscopy**
 Shuo Chen^{1,2}, Xiaogang Liu³, Thomas J McHugh²
¹Hellen Wills Neuroscience Institute, University of California, Berkeley ²Lab. for Circuit and Behavioral Physiol., RIKEN CBS
³Department of Chemistry, National University of Singapore, Singapore
- Discussion (10:25) Takeharu Nagai**
 ISIR, Osaka Univ

Symposium 2S05m

8:30-10:30 Room 5 (3F 302)

The dawn of data- and model-driven neuroscience

Sponsored by MEXT Grant-in-Aid for Scientific Research on Innovative Areas "Systems Science of Bio-navigation"

Chairpersons : Kotaro Kimura *Nagoya City University*
 Junichi Nakai *Saitama University*

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- 2S05m-1 (8:30) Toward data-driven scientific discovery: an example in functional protein design for neuroscience research**
 Ichiro takeuchi^{1,2}
¹Dept Computer Science, Nagoya Institute of Technology, Nagoya, Japan ²Center for Advanced Intelligence Project, RIKEN
- 2S05m-2 (9:00) Deep learning-aided knowledge discovery from animal behavioral data**
 Takuya Maekawa
 Osaka Univ.
- 2S05m-3 (9:30) Mapping the neural substrates of behavior using machine learning**
 Alice A. Robie, Branson Kristin
 HHMI Janelia Research Campus
- 2S05m-4 (10:00) Data-driven predictive models for information processing in the (small) brain**
 Chentao Wen¹, Kotaro Kimura^{1,2}
¹Grad Sch Natural Sci, Nagoya City Univ, Aichi, Japan ²RIKEN AIP, Tokyo, Japan

Symposium 2S06m

8:30-10:30 Room 6 (2F 201A)

Neurobiology of emotional communication in rodents

Chairpersons: Yasushi Kiyokawa *Laboratory of Veterinary Ethology, The University of Tokyo*
 Julen Hernandez-Lallement *Social Brain Lab, Netherlands Institute for Neuroscience*

- 2S06m-1** **Alarm and appeasing pheromones in rat**
 (8:30) Yasushi Kiyokawa
Lab Vet Etho, Univ of Tokyo, Tokyo
- 2S06m-2** **Oxytocin-Dependent Emotion Recognition in Mice**
 (9:00) Francesca Manago, Francesco Papaleo
Istituto Italiano di Tecnologia
- 2S06m-3** **Behavioral and Neural Dynamics of Prosocial Behavior in Rats**
 (9:30) Julen Hernandez-Lallement¹, Valeria Gazzola^{1,2}, Christian Keysers^{1,2}
¹*Social Brain Lab, Netherlands Institute of Neuroscience, The Netherlands*
²*Dept. of Psychology, Univ. of Amsterdam, Amsterdam, The Netherlands*
- 2S06m-4** **The neural basis of social choice in rats**
 (10:00) Sander van Gorp¹, Marijn van Wingerden^{1,2}, Douman Seidisarouei¹, Mireille van Berkel¹,
 Tobias Kalenscher¹
¹*Heinrich-Heine University, Duesseldorf, Germany* ²*Tilburg University, Tilburg, the Netherlands*

Symposium 2S02a

15:10-17:10 Room 2 (2F Main HallA)

Towards understanding how objects are perceived in our brain

The Annual Meeting - Organized Symposium

Chairpersons: Hidehiko Komatsu *Tamagawa University*
 Isao Hasegawa *Niigata University*

- Introduction** Hidehiko Komatsu
 (15:10) *Tamagawa University*
- 2S02a-1** **Joint encoding of shape and surface properties in mid-level ventral visual cortex**
 (15:15) Anitha Pasupathy^{1,2}, Taekjun Kim^{1,2}, Dina V Popovkina³, Wyeth Bair^{1,2}
¹*Dept. of Biological Structure, University of Washington* ²*Washington National Primate Research Center*
³*Dept. of Psychology, University of Washington*
- 2S02a-2** **Distributed neural organization for object vision/memory revealed with electrocorticography**
 (15:40) Isao Hasegawa
Dept Physiol, Niigata Univ Sch Med, Niigata, Japan
- 2S02a-3** **How are priors and likelihood combined during object recognition?**
 (16:05) Floris P de Lange
Radboud University Nijmegen, Netherlands
- 2S02a-4** **Color: a tool to understand the organization and operation of the ventral visual pathway**
 (16:30) Bevil Conway
National Institutes of Health (USA)
- Discussion**
 (16:55)

Bridging emotion and decision making: a view through neural circuits

Chairpersons: Joshua Patrick Johansen *RIKEN Center for Brain Science*
 Anatol Kreitzer *Gladstone Institutes/UCSF*

- 2S03a-1** **The nature of dopamine signals during spatial navigation**
 (15:10) Naoshige Uchida
Harvard University
- 2S03a-2** **Prefrontal-thalamic pathways involved in emotional regulation**
 (15:34) Stephen Maren
Texas A&M University
- 2S03a-3** **Cerebral and systemic integration mechanisms to elicit the crisis-response state**
 (15:58) Reiko Kobayakawa, Ko Kobayakawa
Kansai Medical University
- 2S03a-4** **Function of Basal Ganglia Circuitry in Motivation and Decision Making**
 (16:22) Anatol C Kreitzer
Gladstone Institutes/UCSF
- 2S03a-5** **Parallel brainstem-to-amygdala projections control aversive emotional learning**
 (16:46) Joshua P. Johansen
RIKEN Center for Brain Science

Brain network dysfunction in Alzheimer's disease: a new potential target for future therapy

Chairpersons: Kei Igarashi *University of California, Irvine*
 Abid Hussaini *Columbia University*

- Introduction** Kei M Igarashi^{1,2}
 (15:10) ¹*Department of Anatomy & Neurobiology, University of California, Irvine* ²*JST PRESTO*
- 2S04a-1** **New Approaches to Alzheimer's: From Neural Deficits to Neural Stimulation**
 (15:13) Annabelle C Singer
Georgia Institute of Technology & Emory University
- 2S04a-2** **Network abnormalities and interneuron dysfunction in Alzheimer disease**
 (15:43) Jorge J Palop
University of California, San Francisco; Gladstone Institutes
- 2S04a-3** **Identifying neurons in the brain most vulnerable to Alzheimer's disease**
 (16:13) Abid Hussaini
Columbia University Medical Center
- 2S04a-4** **Impaired neural representation and gamma oscillations in the entorhinal-hippocampal circuit of knock-in Alzheimer model**
 (16:43) Kei M Igarashi^{1,2}
¹*Department of Anatomy & Neurobiology, University of California, Irvine* ²*JST PRESTO*

Symposium 2S05a

15:10-17:10 Room 5 (3F 302)

New trends in neuroimmunology

Symposium Organized by the Recipient of the 5th JSN Distinguished Investigator Award

Chairpersons: Takashi Shichita *Tokyo Metropolitan Institute of Medical Science*
 Kazuhiro Suzuki *Osaka University*

- Introduction** Takashi Shichita
 (15:10) *Tokyo Metropolitan Institute of Medical Science*
- 2S05a-1** Control of lymphocyte behaviors by adrenergic nerves
 (15:15) Kazuhiro Suzuki
Immunology Frontier Research Center, Osaka University, Osaka, Japan
- 2S05a-2** Excessive T cell activation in the absence of PD-1 affects behavior
 (15:35) Sidonia Fagarasan
RIKEN
- 2S05a-3** In situ imaging of monoamine localization and dynamics by mass spectrometry
 (15:55) Yuki Sugiura
Dept. Biochem, Sch of Med, Keio Univ, Tokyo
- 2S05a-4** Dynamic homeostasis of epidermal sensory nerves and its breakdown during skin inflammation
 (16:15) Takaharu Okada^{1,2}
¹Lab for Tissue Dynamics, RIKEN IMS ²Grad School of Med Life Sci, Yokohama City Univ, Yokohama, Japan
- 2S05a-5** Modulation of somatosensory information processing by the CNS immune cells microglia
 (16:35) Makoto Tsuda
Dept Life Innov, Grad Sch Pharm Sci, Kyusyu Univ, Fukuoka, Japan
- 2S05a-6** Role of the innate immune system in cerebral post-ischemic sterile inflammation
 (16:55) Jun Tsuyama, Takashi Shichita
Stroke Renaissance, Tokyo Metro. Inst. Med. Sci.

Symposium 2S06a

15:10-17:10 Room 6 (2F 201A)

Voltage imaging: What's New?

Chairpersons: Bernd Kuhn *OIST Graduate University*
 Takashi Tominaga *Tokushima Bunri University*

- 2S06a-1** Simultaneous dendritic voltage and calcium imaging and somatic recording from Purkinje neurons in awake mice
 (15:10) Bernd Kuhn, Christopher J. Roome
Okinawa Institute of Science and Technology Graduate University
- 2S06a-2** Uncovering functional development of the cerebellum by voltage imaging in zebrafish
 (15:34) Sachiko Tsuda
Grad Sch Sci Engin, Saitama Univ, Saitama, Japan
- 2S06a-3** Genetically encoded voltage indicators and their application
 (15:58) Masayuki Sakamoto
Grad Sch of Med, Univ Tokyo, Tokyo, Japan
- 2S06a-4** Specialization of a voltage indicator for detection of subthreshold potentials towards dual voltage and calcium imaging in vivo.
 (16:22) Yuki Bando
Dept. Organ and Tissue Anatomy, Hamamatsu Univ. Sch. Medicine

2S06a-5 **Optical recording of the real-time in vitro neural circuit dynamics: the voltage-sensitive dye (VSD) imaging and the fast intrinsic optical signal (FIOS)**
(16:46)
Takashi Tominaga, Yoko Tominaga
Inst. Neurosci., Tokushima Bunri Univ., Kagawa, Japan

Symposium 2S07a

15:10-17:10 Room 7 (2F 201B)

A new era of neuroscience with zebrafish

Chairpersons: Koichi Kawakami *National Institute of Genetics*
Masahiko Hibi *Bioscience and biotechnology center, Nagoya Univ*

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- 2S07a-1** **Development and function of zebrafish cerebellar neural circuitry**
(15:10)
Masahiko Hibi^{1,2}, Tsubasa Itoh¹, Shinnosuke Yura¹, Koji Matsuda^{1,2}, Takashi Shimizu^{1,2}
¹Div. of Biological Science, Grad. Sch. of Science, Nagoya Univ. ²Bioscience and Biotechnology Center, Nagoya Univ., Nagoya
- 2S07a-2** **Spinal V1 neurons ensure selective patterns of motor neuron recruitment during locomotion**
(15:30)
Shin-ichi Higashishima, Yukiko Kimura
National Institutes of Natural Sciences, ExCELLS
- 2S07a-3** **Neuronal architecture of a visual center that processes optic flow**
(15:50)
Fumi Kubo
National Inst. of Genetics, Mishima, Japan
- 2S07a-4** **Neural circuit mechanisms underlying olfactory memory and motivated behavior in zebrafish**
(16:10)
Nobuhiko Miyasaka¹, Yoshihiro Yoshihara^{1,2}
¹Lab. for Systems Mol. Ethology, RIKEN CBS ²RIKEN CBS-KAO Collaboration Center (BKCC), RIKEN CBS
- 2S07a-5** **Future state prediction errors guide active avoidance behavior by adult zebrafish.**
(16:30)
Makio Torigoe¹, Tanvir Islam^{1,4}, Hisaya Kakinuma^{1,4}, Chi Chung Alan Fung², Takuya Isomura³, Hideaki Shimazaki³, Tazu Aoki¹, Tomoki Fukai², Hitoshi Okamoto^{1,4}
¹Lab. for Neural Circuit Dynamics of Decision Making, RIKEN CBS ²Lab. for Neural Coding and Brain Computing, RIKEN CBS ³Lab. for Neural Computation and Adaptation, RIKEN CBS ⁴RIKEN CBS-KAO Collaboration Center (BKCC), RIKEN CBS
- 2S07a-6** **The amygdalar and hippocampal functions in zebrafish**
(16:50)
Koichi Kawakami^{1,2}
¹Lab. of Molec. and Dev. Biol., National Inst. of Genetics, Mishima, Japan ²Dept. of Genetics, SOKENDAI

Symposium

Day 3 - July 27

Symposium 3S01m

8:45-10:45 Room 1 (4F International Conference Room)

Exploring the origin of brain and central nervous system through monitoring the neural activity of the whole animal

Chairpersons: Yuichi Iino *Department of Biological Sciences, Graduate School of Science, The University of Tokyo*
 Rafael Yuste *Departments of Biological Sciences and Neuroscience, Columbia University*

Introduction Yuichi Iino

(8:45)

*Department of Biological Sciences, Graduate School of Science, The University of Tokyo***3S01m-1** Origin of Central Nervous System implied by behavioral analysis and visual monitoring of neural activity in Hydra a member of phylum Cnidaria

(8:47)

Hiroshi Shimizu¹, Yukihiko Noro², Katsuhiko Mineta¹, Takashi Gojobori¹¹King Abdullah University of Science and Technology ²Faculty of Science and Engineering Waseda University**3S01m-2** Breaking the Neural Code of a Cnidarian

(9:08)

Rafael Yuste

*Columbia University***3S01m-3** Exploring the information processing of neural network through whole-brain activity-imaging of *C. elegans*

(9:33)

Yu Toyoshima¹, Hirofumi Sato¹, Manami Kanamori¹, Stephen Wu², Moon-Sun Jang¹, Yuko Murakami³, Suzu Oe³, Terumasa Tokunaga⁴, Osamu Hirose⁵, Sayuri Kuge³, Takayuki Teramoto³, Yuishi Iwasaki⁶, Ryo Yoshida², Takeshi Ishihara³, Yuichi Iino¹¹Dept Biol Sci, Univ of Tokyo, Tokyo, Japan²Inst. of Statistical Mathematics, Research Organization of Information and Systems, Tokyo, Japan³Dept. of Biol., Fac. of Sci., Kyushu Univ, Fukuoka, Japan⁴Dept of Systems Design and Informatics, Fac. of Computer Science and Systems Engineering, Kyushu Inst of Technology, Fukuoka, Japan⁵Faculty of Biological Science and Technology, Inst of Science and Engineering, Kanazawa Univ., Ishikawa, Japan⁶Dept. of Mechanical Systems Engineering, College of Engineering, Ibaraki Univ., Ibaraki, Japan**3S01m-4** Embryonic development of the motor circuits in *Drosophila*: emergence of coordinated neural activities and the role of sensory feedback

(9:56)

Akinao Nose^{1,2}, Xiangsunze Zeng¹, Tappei Kawasaki¹, Kengo Inada³, Hokto Kazama³¹Dept. Comp Sci Eng, Univ Tokyo, Kashiwa, Japan ²Dept. Physics, Univ Tokyo, Tokyo³Lab. for Circuit Mechanisms of Sensory Perception, RIKEN CBS**3S01m-5** Visualization of neuronal activity in prey capture behaviour in zebrafish larvae

(10:19)

Akira Muto

*National Institute of Genetics, Molecular and Developmental Biology***Summary** Rafael Yuste

(10:42)

Columbia University

Symposium 3S02m

8:45-10:45 Room 2 (2F Main HallA)

Dissecting neural circuit basis of depression and bipolar disorder

Chairpersons: Tadafumi Kato *RIKEN Center for Brain Science*
 Hidenori Aizawa *Dept Neurobiol, Sch Biomed Health Sci, Hiroshima Univ, Japan*

3S02m-1 Role of raphe nuclei and paraventricular thalamic nucleus in animal models of bipolar disorder

(8:45)

Mie Kubota-Sakashita, Tadafumi Kato

*Lab for Mol Dynam Mental Disord, RIKEN CBS, Saitama, Japan***3S02m-2** Deciphering the heterogeneous symptoms of depression by the habenular pathways

(9:10)

Hidenori Aizawa

Dept Neurobiol, Sch Biomed Health Sci, Hiroshima Univ, Japan

3S02m-3 **Molecular and neural mechanisms of stress susceptibility and resilience**
(9:35) Shusaku Uchida
SK Project, MIC, Kyoto Univ Grad Sch of Medicine, Kyoto, Japan

3S02m-4 **Brain-wide neural oscillatory networks predict depression vulnerability**
(10:00) Rainbo Hultman
University of Iowa

Discussion
(10:25)


Symposium 3S03m

8:45-10:45 Room 3 (2F Main HallB)

Linking Neural Circuits and Function to Behaviour


Chairpersons: Roger Marek *Queensland Brain Institute, The University of Queensland, AU*
Angelo Tedoldi *Queensland Brain Institute, The University of Queensland, AU*

Introduction Neural circuit that drives fear and its extinction
(8:45) Roger Marek
The University of Queensland

3S03m-1 **VCAM1 Label a Subpopulation of Neural Stem Cells in Adult Hippocampus and Functional Link to Spatial Memory**
(8:50)  Xiao-Ling Hu^{1,2}, Dan-Ying Wang^{1,2}, An-Feng Luo^{1,2}, Qing-Ran Bai⁴, Qin Shen⁴, Xiao-Min Wang^{1,2,3}
¹*Salk Institute for Biological Studies, San Diego, CA, USA*; ²*Beijing Key Laboratory of Neural Regeneration and Repair, Capital Medical University, Beijing 100069, China*; ³*Beijing Institute for Brain Disorders, Beijing 100069, China*; ⁴*Brain and Spinal Cord Innovative Research Center of Tongji Hospital, School of Life Sciences and Technology Tongji University, Shanghai 200065, China*

3S03m-2 **Linking emotion to motion: an open cortico-basal ganglia loop allows limbic control over motor output**
(9:15) Sho Aoki^{1,2,3,4}, Jared B Smith¹, Hao Li¹, Xunyi Yan¹, Masakazu Igarashi^{2,4}, Patrice Coulon⁵, Jeffery R Wickens², Tom JH Ruigrok³, Xin Jin¹
¹*Salk Institute for Biological Studies* ²*Okinawa Inst. of Science and Technology* ³*Erasmus Medical Center Rotterdam* ⁴*Japan Society for the Promotion of Science* ⁵*Institut des Neurosciences de la Timone*

3S03m-3 **Neural circuit that drives fear and its extinction**
(9:45) Roger Marek
The University of Queensland

3S03m-4 **Ketamine, burst, glia and depression**
(10:10)  Yan Yang, Hui Yi Cui, Ning Kang Sang, Yan Yi Dong
Zhejiang University

Discussion
(10:35)

Symposium 3S04m

8:45-10:45 Room 4 (3F 301)

New modes of neuronal translation regulation in health and disease

Chairpersons: Motomasa Tanaka *RIKEN CBS*
Aaron Gitler *Stanford University School of Medicine*

3S04m-1 **Targeting RAN proteins improves phenotypes in C9orf72 BAC ALS/FTD mice**
(8:45) Laura Ranum¹, Lien Nyguen², Fabio Montrasio³, Olgert Bardhi², Shu Guo², Solaleh Khoramian Tusi², Katsuya Nakamura², Monica Banez Coronel², Nahum Sonenberg⁴, Jan Grimm³, Tao Zu²
¹*Center for NeuroGenetics, Department of Molec. Genet. Microb. University of Florida* ²*Center for NeuroGenetics, University of Florida* ³*Neurimmune AG* ⁴*McGill University*

- 3S04m-2 (9:10) Epitranscriptomics in Synapses**
 Dan Ohtan Wang¹, Kei Iida², Ikumi Oomoto¹, Belinda Goldie³, Kelsey Martin⁴, Matteo Pelligrini⁴
¹*iCeMS, Kyoto University* ²*Kyoto University, School of Medicine* ³*Monash University, Australia*
⁴*University of California, Los Angeles, USA*
- 3S04m-3 (9:35) RNG105 (caprin1) establishes dendritic mRNA localization and is essential for long-term memory formation**
 Nobuyuki Shiina^{1,2,3}
¹*National Inst. for Basic Biology, Aichi, Japan* ²*ExCELLS* ³*The Grad. Univ. for Advanced Studies (SOKENDAI), Okazaki, Japan*
- 3S04m-4 (10:00) Impaired mRNA translation and mental function by protein aggregation in neuropsychiatric disorders**
 Motomasa Tanaka
Lab. for Protein Conformation Diseases, RIKEN CBS
- 3S04m-5 (10:20) RPS25 regulates RAN translation of C9orf72 repeat expansions**
 Aaron D. Gitler
Stanford University

Symposium 3S05m

8:45-10:45 Room 5 (3F 302)

Brain-state dynamics underlying consciousness and cognition

Chairpersons: Sakiko Honjoh *University of Tsukuba, International Institute for Integrative Sleep Medicine*
 Akihiro Yamanaka *Nagoya University, Department of Neuroscience II*

- 3S05m-1 (8:45) Functional identification involved in the regulation of sleep/wakefulness brain state change**
 Akihiro Yamanaka
Res Inst Environ Med, Nagoya Univ
- 3S05m-2 (9:05) Hippocampal information processing across sleep/wake cycles**
 Kenji Mizuseki
Osaka City University Graduate School of Medicine, Osaka, Japan
- 3S05m-3 (9:25) Consciousness and Brain Complexity: an exploration across scales and models**
 Marcello Massimini
University of Milan
- 3S05m-4 (9:55) Vigilance state-dependent thalamocortical activity dynamics**
 Sakiko Honjoh
International Institute for Sleep Medicine, Univ of Tsukuba, Tsukuba, Ibaraki, Japan
- 3S05m-5 (10:15) Harnessing the immune system to combat age-related dementia and Alzheimer's disease**
 Itzhak Fried
University of California, Los Angeles, Department of Neurosurgery

Symposium 3S06m

8:45-10:45 Room 6 (2F 201A)

Neuro-Immune Crosstalk: Its role in the pathogenesis and perspectives for novel therapies

Chairpersons: Makoto Urushitani *Department of Neurology, Shiga University of Medical Science*
 Takashi Yamamura *National Institute of Neuroscience, NCNP*

- Introduction (8:45)** Takashi Yamamura
National Institute of Neuroscience, NCNP
- 3S06m-1 (8:49) Using the brain to boost immunity and fight cancer**
 Asya Rolls
Technion- Israel Institute of Technology

- 3S06m-2 (9:18)** Immunological aspects of a possible biomarker and therapeutic target for secondary progressive multiple sclerosis
Shinji Oki
Dept. Immunol., National Center of Neurology and Psychiatry, National Inst. of Neuroscience
- 3S06m-3 (9:47)** Elimination of TDP-43 inclusions linked to amyotrophic lateral sclerosis by a misfolding-specific intrabody
Makoto Urushitani
Dept Neurol, Shiga Univ of Med Sci
- 3S06m-4 (10:16)** Harnessing the immune system to combat age-related dementia and Alzheimer's disease
Michal Schwartz
Neurobiology, Weizmann Institute of Science

Symposium 3S02a

14:20-16:20 Room 2 (2F Main HallA)

Neuroinflammation and the Blood Brain Interface: New findings in brain pathology

Chairpersons: Atsuyoshi Shimada *Kyorin University Faculty of Health Sciences*
Keith W. Kelley *Department of Animal Sciences in College of ACES, University of Illinois at Urbana-Champaign*

Introduction (14:20) Keith W. Kelley
Department of Animal Sciences in College of ACES, University of Illinois at Urbana-Champaign

3S02a-1 (14:25) Regulating Neurological Disorders via the Meningeal Lymphatic System
Antoine Louveau¹, Jonathan Kipnis²
¹Lerner Research Institute Cleveland Clinic ²University of Virginia

3S02a-2 (14:55) The Neuroimmune Axes of the Blood-brain Interface
William Allen Banks
Veterans Affairs and U of Washington - Seattle

3S02a-3 (15:25) Meningeal and capillary mediation of brain inflammation
Mike Dragunow
University of Auckland

3S02a-4 (15:55) Histological architecture underlying brain-immune cell-cell interactions
Atsuyoshi Shimada
Kyorin University Faculty of Health Sciences

Symposium 3S03a

14:20-16:20 Room 3 (2F Main HallB)

Novel circuits for the control of emotion linked with psychiatric disorders

Chairpersons: Satoshi Kida *Department of Bioscience, Tokyo University of Agriculture*
Mazen Kheirbek *Department of Psychiatry, University of California San Francisco*

Introduction (14:20) Satoshi Kida
Dept. of Bioscience, Tokyo Univ. of Agriculture, Tokyo

3S03a-1 (14:21) Dissecting Locus Coeruleus Noradrenergic Circuits in Stress and Anxiety
Michael R Bruchas¹, Andrew Luskin¹, Kelsey Barcomb², Chris Ford²
¹University of Washington ²University of Colorado - Denver

3S03a-2 (14:45) Regulation of reconsolidation and extinction by fear memory engrams
Satoshi Kida
Dept. of Bioscience, Tokyo Univ. of Agriculture, Tokyo

- 3S03a-3 (15:08)** Prefrontal cortex and midline thalamic output circuits guide reward seeking through divergent cue encoding
Garret Stuber
University of Washington
- 3S03a-4 (15:32)** Neural Circuit Mechanism of Social Hierarchy
Hailan Hu
Zhejiang University
- 3S03a-5 (15:56)** Memory codes in the dentate gyrus
Mazen Kheirbek
University of California, San Francisco

Symposium 3S04a

14:20-16:20 Room 4 (3F 301)

Non-linguistic bases of language and its acquisition: Music, Mathematics, Executive Function, Information Technology, and Social Cognition

Chairpersons: Motoaki Sugiura *Tohoku University*
Adam Tierney *Birkbeck, University of London*

- 3S04a-1 (14:20)** Auditory processing and second language acquisition
Adam Tierney¹, Magdalena Kachlicka¹, Hui Sun¹, Kazuya Saito²
¹*Birkbeck College* ²*University College London*
- 3S04a-2 (14:50)** Neural mechanisms of hierarchical structure building in language and mathematics
Michiru Makuuchi
National Rehabilitation Center for Persons with Disabilities
- 3S04a-3 (15:20)** Neurocognitive Correlates of Scientific Text Comprehension: Individual Differences in Executive Functions, Electronic Device Usage and Reading Habits
Chun-Ting Hsu^{1,2}, Roy Clariana³, Benjamin Schloss², Ping Li²
¹*Kyoto University* ²*Dept Psychology, Pennsylvania State University, USA*
³*Dept Learning and Performance Systems, Pennsylvania State University, USA*
- 3S04a-4 (15:50)** The role of social cognition in language learning
Hyeonjeong Jeong
Tohoku University

Symposium 3S05a

14:20-16:20 Room 5 (3F 302)

Molecular mechanisms for making species-specific neuronal circuits

Sponsored by Grant-in-Aid for Scientific Research on Innovative Areas "Interplay of developmental clock and extracellular environment in brain formation"

Chairpersons: Tadashi Nomura *Developmental Neurobiology, Kyoto Prefectural University of Medicine*
Chiaki Ohtaka-Maruyama *Tokyo Metropolitan Institute of Medical Science*

- Introduction (14:20)** Patterns of neuronal migration and the evolution of mammalian-type neocortical architecture
Tadashi Nomura
Dev Neurobiol. Kyoto Pref Univ Med
- 3S05a-1 (14:25)** Patterns of neuronal migration and the evolution of mammalian-type neocortical architecture
Tadashi Nomura
Dev Neurobiol. Kyoto Pref Univ Med
- 3S05a-2 (14:48)** The neural basis underlying species-specific courtship behavior in *Drosophila subobscura*
Ryoya Tanaka¹, Tomohiro Higuchi^{2,3}, Soh Kohatsu³, Kosei Sato³, Takeshi Awasaki⁴, Daisuke Yamamoto³
¹*Nagoya University* ²*Tohoku University* ³*Advanced ICT Research Institute* ⁴*Kyorin University*

3S05a-3 (15:11) A novel function of subplate neurons in radial migration and its implication in the evolution of mammalian neocortical layer structure

Chiaki Maruyama

Neural Network Project, Tokyo Metropolitan Inst. of Medical Science, Tokyo, Japan

3S05a-4 (15:34) Mechanisms regulating the formation of commissural projections in human, mouse and marsupial brain development

Linda J Richards^{1,2}, Rodrigo Suarez¹, Tobias Bluett¹, Annalisa Paolino¹, Laura R Fenlon¹, Laura Morcom¹, Ilan Gobius¹, Peter Kozulin¹, Ryan Dean¹, Timothy J Edwards^{1,3}

¹The University of Queensland, Queensland Brain Institute ²The University of Queensland, School of Biomedical Sciences

³The University of Queensland, Faculty of Medicine

3S05a-5 (15:57) CORTICAL LAYER WITH NO KNOWN FUNCTION

Zoltan Molnar

University of Oxford

Symposium 3S06a

14:20-16:20 Room 6 (2F 201A)

Retinal plasticity over time scales: Hibernation, circuit reorganization, and synaptic modulation

Chairpersons: Chieko Koike *Ritsumeikan University, School of Pharmaceutical Science*
Steve DeVries *Northwestern University, Feinberg School of Medicine*

Introduction (14:20) Chieko Koike
Northwestern University

3S06a-1 (14:25) Seeing in the cold – vision and hibernation

Wei Li

National Institutes of Health, NIH

3S06a-2 (14:55) Restoration of selective connectivity in adult mammalian retina

Alexander Sher

Santa Cruz Institute for Particle Physics, University of California Santa Cruz

3S06a-3 (15:25) Mechanisms of fast adaptation at the mammalian cone photoreceptor synapse

Steven H DeVries

Northwestern University

3S06a-4 (15:55) Normal and pathological states generated by dynamical properties of the retinal circuit

Katsunori Kitano

Dept. of Information Science and Engineering, Ritsumeikan Univ.

3S06a-5 (16:05) Rapid and coordinated processing of global motion images by local clusters of retinal ganglion cells

Masao Tachibana^{1,4}, Akihiro Matsumoto^{2,3,4}

¹Research Organization of Science and Technology, Ritsumeikan Univ, Shiga, Japan

²Global Innovation Research Organization, Ritsumeikan Univ, Shiga, Japan

³DANDRITE, Dep Biomedicine, Aarhus Univ, Aarhus, Denmark

⁴Dept. Psychol, Grad Sch Hum and Soc, Univ of Tokyo, Tokyo, Japan

Symposium 3S01e

16:30-18:30 Room 1 (4F International Conference Room)

Brain-gut axis: the cutting edge

Elsevier/NSR Symposium

Chairpersons: Takefumi Kikusui *Azabu University*
Shelly A. Buffington *Baylor College of Medicine*

Introduction (16:30) Takefumi Kikusui
Azabu University

- 3S01e-1 (16:40) Host-microbe interactions regulating synaptic plasticity and behavior**
Shelly A Buffington^{1,2,3}
¹*Department of Neuroscience, Cell Biology, & Anatomy, University of Texas Medical Branch, Galveston, TX, USA*
²*Recent Affiliation: Department of Neuroscience, Baylor College of Medicine, Houston, TX, USA*
³*Recent Affiliation: Memory and Brain Research Center, Baylor College of Medicine, Houston, TX, USA*
- 3S01e-2 (17:05) PSYCHONEUROIMMUNOLOGY AND GUT MICROBES**
Paul Forsythe
McMaster University
- 3S01e-3 (17:30) Gut microbiota and the pathogenesis of multiple sclerosis**
Takashi Yamamura
Dept Immunol, National Institute of Neuroscience, NCNP
- 3S01e-4 (17:55) Gut Microbiota and Brain-Gut Interactions in Irritable Bowel Syndrome**
Shin Fukudo
Department of Behavioral Medicine, Tohoku University Graduate School of Medicine

Symposium 3S02e

16:30-18:30 Room 2 (2F Main HallA)

New understanding of functions of basal ganglia in health and disease

Chairpersons: Toshikuni Sasaoka *Center for Bioresource-based Researches, Brain Research Institute, Niigata University*
Atsushi Nambu *National Institute for Physiological Sciences, National Institutes for Natural Sciences*

- 3S02e-1 (16:30) The striatal function in the rhythmical stepping of mice**
Takashi Kitsukawa
Graduate school of frontier biosciences, Osaka University
- 3S02e-2 (16:54) Abnormal information processing through the cortico-basal ganglia pathways is responsible for parkinsonian symptoms**
Satomi Chiken^{1,2}, Atsushi Nambu^{1,2}
¹*Div System Neurophysiol, Natl Inst Physiological Sci, Okazaki, Japan* ²*Dept Physiol Sci, SOKENDAI, Okazaki, Japan*
- 3S02e-3 (17:18) Chemogenetic and pharmacological deconstruction of hypokinesia and dyskinesia in Parkinson models**
M. Angela Cenci Nilsson
Dept. Experimental Medical Science, Lund University, Lund, Sweden
- 3S02e-4 (17:42) Morphological backgrounds of levodopa-induced dyskinesias**
Masahiko Tomiyama
Dept Neurol, Hirosaki Univ, Hirosaki, Japan
- 3S02e-5 (18:06) Mutations in CalDAG-GEFI lead to motor and psychomotor symptoms in multiple species including human.**
Ann M. Graybiel
McGovern Institute for Brain Research, Massachusetts Institute of Technology (MIT)

Symposium 3S03e

16:30-18:30 Room 3 (2F Main HallB)

The neurobiology of dynamic innate social behaviors

Chairpersons: Takashi Yamaguchi *New York University Neuroscience Institute*
Aki Takahashi *Laboratory of Behavioral Neuroendocrinology, University of Tsukuba*

- Introduction (16:30) Interplay between immune system and aggressive behavior**
Takashi Yamaguchi
Neurosci Inst, New York Univ. Sch. of Medicine, New York, USA

- 3S03e-1 (16:34) Dichotomic control of limbic-hypothalamic linkages for innate social behaviors**
Takashi Yamaguchi, Dayu Lin
Neurosci Inst, New York Univ. Sch. of Medicine, New York, USA
- 3S03e-2 (17:03) Interplay between immune system and aggressive behavior**
Aki Takahashi
Laboratory of Behavioral Neuroendocrinology, University of Tsukuba, Japan
- 3S03e-3 (17:32) Hypothalamic control of aggressive motivation and action**
Annegret L Falkner
Princeton Neuroscience Institute, Princeton University
- 3S03e-4 (18:01) Behavioral examination framework for parental behavior components in rodents, non-human primates and humans**
Kumi O. Kuroda
Lab for Affiliative Social Behavior, RIKEN Center for Brain Science, Saitama, Japan

Symposium 3S04e

16:30-18:30 Room 4 (3F 301)

Super crosstalk of metabolism and information processing

Chairpersons: Ko Matsui *Tohoku University*
Adam Tierney *Birkbeck College*

- 3S04e-1 (16:30) Astrocytic control of neuronal information processing and disease**
Ko Matsui
Super-network Brain Physiology, Grad Sch of Life Sci, Tohoku Univ, Miyagi, Japan
- 3S04e-2 (16:50) The role of innate immunity and lipid metabolism in ischemic stroke**
Takashi Shichita
Stroke Renaissance Project, Tokyo Metro Inst Med Sci, Tokyo, Japan
- 3S04e-3 (17:10) In vivo optical recording reveal state-dependent intracellular ATP dynamics in neurons**
Akiyo Natsubori
Sleep Disorders Proj, Tokyo Metropolitan Institute of Medical Science, Tokyo, Japan
- 3S04e-4 (17:30) Regional blood flow regulation by optogenetics**
Kenji Tanaka
Dept. Neuropsychiat, Keio Univ Sch of Med, Tokyo, Japan
- 3S04e-5 (17:50) Dynamics of energy metabolites in brain cells.**
Johannes Hirrlinger^{1,2}, Andrea Trevisiol², Ulrike Winkler¹, Susanne Kohler¹
¹*University of Leipzig, Carl-Ludwig-Institute for Physiology*
²*Max-Planck-Institute for Experimental Medicine, Dept. of Neurogenetics*

Symposium 3S05e

16:30-18:30 Room 5 (3F 302)

Interpretation of human brain mechanisms and drug discovery using leading-edge stem cell technologies

Chairpersons: Mitsuru Ishikawa *Dept. Physiology, Keio University School of Medicine*
Yu-Wen Alvin Huang *Stanford University Scholl of Medicine*

- 3S05e-1 (16:30) ApoE2, E3 and E4 differentially activate MAP-kinase signaling to regulate amyloid- β secretion and synapse formation paralleling their role in Alzheimer's disease**
Yu-Wen Alvin Huang
Stanford University School of Medicine

- 3S05e-2 (16:55) Staged Dysregulation of Cortical Development Underlies Psychoses**
Tomoyo Sawada^{1,2,3}, Thomas E Chater⁴, Yohei Sasagawa⁵, Mika Yoshimura⁵, Noriko Fujimori³, Kaori Tanaka⁵, Yukiko Goda⁴, Itoshi Nikaido^{5,6}, Tadafumi Kato³
¹Lieber Inst. for Brain Development, Baltimore, USA ²Dept Neurology, Johns Hopkins Univ Sch of Med, Baltimore, USA
³Lab for Mol Dynamics of Mental Dis, RIKEN CBS, Saitama, Japan
⁴Lab for Synaptic Plasticity and Connectivity, RIKEN CBS, Saitama, Japan
⁵Lab for Bioinformatics Res, RIKEN BDR, Saitama, Japan
⁶Sch of Integrative and Global Majors, Univ of Tsukuba, Ibaraki, Japan
- 3S05e-3 (17:20) Detecting somatic variations in human brain cells at single cell level**
Miki Bundo^{1,2}, Tadafumi Kato³, Kazuya Iwamoto¹
¹Dept. Mol Brain, Kumamoto Univ, Kumamoto ²PRESTO JST ³Lab. for Mol. Dynamics of Mental Disorders, RIKEN CBS
- 3S05e-4 (17:45) Why do we need translational research of psychiatric disorders using human directly induced neuronal (iN) cells?**
Noriaki Sagata, Takahiro A Kato
Dept Neuropsych, Kyushu Univ, Fukuoka, Japan
- 3S05e-5 (18:10) Cellular Modeling of a Neurodevelopmental Disorder using Functionally Matured Human Excitatory / Inhibitory Neurons**
Mitsuru Ishikawa, Hideyuki Okano
Dept Physiol, Keio Univ Sch Med, Tokyo, Japan

Symposium 3S06e

16:30-18:30 Room 6 (2F 201A)

Technological advances of ultra-high field MRI in Neuroscience and the future direction of laminar/columnar functional MRI

Chairpersons : Jiajia Yang *Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University, Japan*
Laurentius Huber *Section on Functional Imaging Methods, National Institute of Mental Health, USA*

- Introduction (16:30)** Jiajia Yang
Graduate School of Interdisciplinary Science and Engineering in Health Systems, Okayama University, Japan
- 3S06e-1 (17:02) Brain microstructure and function using ultra high field MRI**
Masaki Fukunaga^{1,2}
¹Div. of Cerebral Integration, National Inst. for Physiological Sciences, JAPAN
²School for Life science, SOKENDAI (The Graduate University for Advanced Studies), JAPAN
- 3S06e-2 (16:36) Challenges and opportunities for laminar imaging using Gradient-echo BOLD signal**
Kamil Uludag^{1,2}
¹Koerner Scientist in MR Imaging, Department of Medical Biophysics, University of Toronto
²Sungkyunkwan University, Department of Biomedical Engineering and Institute for Basic Science (IBS), Seobu-ro 2066, Jangan-gu, Suwon, Korea
- 3S06e-3 (17:02) High-field high-resolution fMRI technology reveals information flow across cortical microcircuits of layers and columns.**
Renzo Huber¹, Laurentius Huber^{1,2}
¹University of Maastricht ²SFIM, LBC, NIMH, NIH
- 3S06e-4 (17:54) Understanding tactile processing at columnar and laminar level using high-resolution fMRI**
Yinghua Yu^{1,2,3}, Laurentius Huber^{3,4}, Jiajia Yang^{1,3}, Peter A Bandettini³
¹Okayama University, Okayama, Japan ²JSPS, Tokyo, Japan ³SFIM, LBC, NIMH, NIH, Bethesda, MD, USA
⁴University of Maastricht, Maastricht, Netherlands

Discussion (18:20)

Symposium 4S01m 8:45-10:45 Room 1 (4F International Conference Room)

Prodromal PD -bench to bedside-**Basic and Clinical Neuroscience Collaboration Symposium**

Chairpersons : Ryosuke Takahashi *Department of Neurology, Kyoto University Graduate School of Medicine*
 Noriko Nishikawa *Department of Neurology, National Center for Neurology and Psychiatry Hospital*

- 4S01m-1 (8:50) JPPMI- A cohort study of prodromal PD in Japan**
 Noriko Nishikawa
National Center for Neurology and Psychiatry
- 4S01m-2 (9:15) Progression of alpha-synuclein pathology in Parkinson disease**
 Koichi Wakabayashi
Dept Neuropathol, Hirosaki Univ Sch of Med, Aomori, Japan
- 4S01m-3 (9:40) Animal model of prodromal Parkinson's disease**
 Hodaka Yamakado
Dept. of Neurology, Grad. Sch. of Medicine Kyoto Univ.,
- 4S01m-4 (10:05) Extracellular α -synuclein levels are regulated by neuronal activity**
 Kaoru Yamada, Takeshi Iwatsubo
Dept. of Neuropathology, Graduate School of Medicine, The University of Tokyo

Symposium 4S02m 8:45-10:45 Room 2 (2F Main HallA)

Breakthrough that links basic neuroscience and potential therapeutic strategies for neuropsychiatric disorders

Chairpersons : Shigeki Moriguchi *Dept.of Pharmacol., Grad. Sch. Pharmaceut. Sci., Tohoku Univ.*
 Akiko Hayashi-Takagi *Lab. of Med Neurosci, IMCR, Gunma Univ*

- 4S02m-1 (8:45) Exploration of novel mechanism target for behavioral and psychological symptoms of Alzheimer's disease**
 Shigeki Moriguchi, Kohji Fukunaga
Dept Pharmacol, Grad Sch Pharmaceut Sci, Tohoku Univ
- 4S02m-2 (9:15) Synaptic Plasticity: from bench to bedside**
 Takuya Takahashi
Dept. of Physiology, Graduate School of Medicine, Yokohama City University, Japan
- 4S02m-3 (9:45) To make or not to make synapses - possible therapeutic tools for synaptopathies**
 Michisuke Yuzaki
Dept Physiol, Keio Univ Sch of Med, Tokyo, Japan
- 4S02m-4 (10:15) Cell-based and high content screening of synapse imaging for drug development of psychiatric disorders**
 Akiko Hayashi-Takagi
Lab of Med Neurosci, IMCR, Gunma Univ

Symposium 4S03m

8:45-10:45 Room 3 (2F Main HallB)

New insights on the cortico-hippocampal dialogue underlying memory 記憶を担う大脳皮質と海馬の協調の新展開

Chairpersons: Thomas John McHugh *RIKEN Center for Brain Science*
Albert Tsao *Stanford University*

- 4S03m-1** Episodic time coding in lateral entorhinal cortex
(8:45) Albert Tsao
Stanford University
- 4S03m-2** Prefrontal top-down control over memory encoding in the hippocampus
(9:09) Kaori Takehara-Nishiuchi
Univ of Toronto
- 4S03m-3** Prefrontal cortical neurons reflect hippocampal non-local trajectory information during hippocampal replay and during theta sequences
(9:33) Paul Frankland
Neuroscience & Mental Health, Hospital for Sick Children
- 4S03m-4** Prefrontal cortical neurons reflect hippocampal non-local trajectory information during hippocampal replay and during theta sequences
(9:57) David Foster¹, Alice Berners-Lee^{1,2}, Xiaojing Wu²
¹*University of California, Berkeley* ²*Dept of Neuroscience, Johns Hopkins University School of Medicine, Baltimore MD, USA*
- 4S03m-5** Physiological signature of memory age in the prefrontal-hippocampal circuit
(10:21) Thomas J. McHugh
RIKEN Center for Brain Science, Lab for Circuit and Behavioral Physiology

Symposium 4S04m

8:45-10:45 Room 4 (3F 301)

Compartmentalized dendritic integration: from molecular mechanisms to behavior

Chairpersons: Naoya Takahashi *Humboldt University of Berlin, Institute for Biology*
Keisuke Yonehara *DANDRITE, Aarhus University*

- Introducton** Naoya Takahashi¹, Keisuke Yonehara²
(8:45) ¹*Institute for Biology, Humboldt University of Berlin, Berlin, Germany*
²*DANDRITE, Dept Biomed, Aarhus University, Aarhus, Denmark*
- 4S04m-1** Differential pre and postsynaptic contributions in setting the synaptic strengths across a dendritic tree in hippocampal neurons
(8:48) Yukiko Goda¹, Mathieu Letellier²
¹*RIKEN Center for Brain Science* ²*Institut Interdisciplinaire de Neurosciences, UMR5297, Bordeaux, FRANCE*
- 4S04m-2** Dendritic compartment-specific regulation of spine density during development
(9:15) Takeshi Imai
Grad Sch of Med Sci, Kyushu Univ, Fukuoka, Japan
- 4S04m-3** Spatiotemporally asymmetric excitations support retinal motion sensitivity
(9:35) Keisuke Yonehara¹, Akihiro Matsumoto¹, Kevin Briggman²
¹*DANDRITE, Dept Biomed, Aarhus University, Aarhus, Denmark*
²*Center of Advanced European Studies and Research (caesar), Bonn, Germany*
- 4S04m-4** Subclass-specific dendritic activation of cortical pyramidal neurons gates tactile perception in mice
(9:55) Naoya Takahashi, Matthew Larkum
Institute for Biology, Humboldt University of Berlin, Berlin, Germany

4S04m-5 Learning and sleep-dependent branch-specific dendritic spine plasticity in the cortex

(10:15)

Wenbiao Gan¹, Zhiwei Xu¹, Yanmei Zhou^{1,3}, Cora Lai², Guang Yang³

¹New York University School of Medicine

²School of Biomedical Sciences, Li Ka Shing Faculty of Medicine, University of Hong Kong

³Department of Anesthesiology, Columbia University Medical School

Discussion

(10:42)

Symposium 4S05m

8:45-10:45 Room 5 (3F 302)

Cortical circuit development: role of thalamocortical input

Chairpersons: Tomomi Shimogori *RIKEN Center for Brain Science*

James Andrew Bourne *Australian Regenerative Medicine Institute, Monash University, Australia*

4S05m-1 Development and function of Phox2a+ spinofugal nociceptive projection neurons

(8:45)

Artur Kania^{1,2}, Brian R. Roome^{1,2}, Shima Rastegar-Pouyani^{1,2}, Susana Sotocinal², Annie Dumouchel¹, W. Scott Thompson¹, Jean-Francois Brunet³, Marie Kmita¹, Jeff Mogil²

¹Institut de Recherches Cliniques de Montreal (IRCM), Montreal, Canada ²McGill University, Montreal, Canada

³Ecole Normale Supérieure, Paris, France

4S05m-2 Organization of mouse dLGN: circuits underlying a faithful relay and active filtering of retinal signaling to visual cortex.

(9:15)

William Guido

Anatomical Sciences and Neurobiology, University of Louisville, KY, USA

4S05m-3 The control of Post-mitotic Neuronal Development by pre-synaptic Thalamocortical inputs

(9:45)

Tomomi Shimogori, Timothy R Young

RIKEN CBS

4S05m-4 Development of pulvino-cortical circuits: implications for behaviours and disorders.

(10:15)

James Andrew Bourne

Australian Regenerative Medicine Institute, Monash University, Australia

Symposium 4S06m

8:45-10:45 Room 6 (2F 201A)

Dynamics and its novel mechanisms of "capillary-milieu" in the CNS development and diseases

Chairpersons: Ken-ichi Mizutani *Graduate School of Pharmaceutical Sciences, Kobe Gakuin University*

Nozomu Takata *Center for Vascular and Developmental Biology, Feinberg School of Medicine, Northwestern University*

Introduction Ken-ichi Mizutani

(8:45)

Grad Sch Pharm Sci, Kobe Gakuin Univ

4S06m-1 Interaction of neurogenesis and angiogenesis is essential for the proper assembly of the neocortex

(8:50)

Ken-ichi Mizutani

Grad Sch Pharm Sci, Kobe Gakuin Univ

4S06m-2 Visualization of vascular dynamics using artificial microvessel model

(9:12)

Yukiko Matsunaga

Inst. Indust Sci, Univ of Tokyo, Tokyo

- 4S06m-3 (9:34) Molecular identification and cell-type specific signatures during eye organoid morphogenesis**
 Nozomu Takata¹, Fiore Luciano¹, He Liqun², Marc A. Morgan³, Manuel JG. Rodriguez⁴, Nikita Joshi⁵, Alexander V. Misharin⁵, Ryan B. Embry⁶, Priyam Patel⁶, Matthew Schipma⁶, Ali Shilatifard³, Christer Betsholtz², Guillermo Oliver¹
¹Center for Vascular and Developmental Biology, Feinberg Cardiovascular and Renal Research, Feinberg School of Medicine, Northwestern Univ, Chicago, USA
²Dept Immunology, Genetics and Pathology, Rudbeck Lab, Uppsala Univ, Uppsala, Sweden.
³Dept Biochemistry and Molecular Genetics, Northwestern Univ, Feinberg School of Medicine, Chicago, USA
⁴Spanish National Center for Cardiovascular research, Madrid, Spain
⁵Dept Med and Pulmonary and Critical Care Medicine, Northwestern Univ, Chicago, USA.
⁶Feinberg Cardiovascular and Renal Research Institute, Feinberg School of Medicine, Northwestern Univ, Chicago, USA
- 4S06m-4 (9:56) Neural retina-derived retinoic acids controls choroidal vasculature development**
 Akishi Onishi^{1,2}
¹Lab. for Retinal Regeneration, RIKEN BDR
²Patients' iPS Cell Research Unit, Kobe City Eye Hospital Research Center
- 4S06m-5 (10:18) Molecular technology regulating the vascular environment for injured brain regeneration**
 Itsuki Ajioka
 Center for Brain Integration Research, Tokyo Medical and Dental Univ.
- Discussion (10:40) Nozomu Takata**
 Inst. Indust Sci, Univ of Tokyo, Tokyo

Symposium 4S07m

8:45-10:45 Room 7 (2F 201B)

New tools for neuroscience research - from nano to macroscales

Chairpersons: Takayasu Mikuni *Brain Research Institute, Niigata University*
 Kazuki Tainaka *Brain Research Institute, Niigata University*

- 4S07m-1 (8:45) Development and application of genome editing technologies in the mammalian brain in vivo**
 Takayasu Mikuni^{1,2}
¹Dept. Cell Pathol, Brain Research Institute, Niigata Univ, Niigata, Japan
²Japan Science and Technology Agency, PRESTO, Saitama, Japan
- 4S07m-2 (9:15) Correlated Light-Serial Scanning Electron Microscopy (CoLSSEM) for ultrastructural visualization of single neurons in vivo**
 Yusuke Hirabayashi^{1,2,3}, Juan Carlos Tapia³, Polleux Franck³
¹Dept. Chem. and Biotech., School of Eng., Univ. of Tokyo, Tokyo, Japan ²PRESTO JST
³Dept. Neurosci. Columbia University, NY, USA
- 4S07m-3 (9:45) Dissecting behaviorally-relevant circuits at cellular resolution**
 Hyungbae Kwon
 Max Planck Florida Institute
- 4S07m-4 (10:15) Comprehensive 3D imaging by tissue clearing technique CUBIC**
 Kazuki Tainaka
 Dept Sys Pathol, Niigata Univ, Niigata, Japan

Failure of organelle communications as a key pathomechanism for neurological disorders

Sponsored by IBRO-APRC Lecturer Exchange Program

Chairpersons: Kazunori Imaizumi *Department of Biochemistry, Institute of Biomedical & Health Sciences, Hiroshima University*

Koji Yamanaka *Department of Neuroscience and Pathobiology, Research Institute of Environmental Medicine, Nagoya University*

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- 4S02a-1 (10:50)** **A role of mitochondria-associated membrane in motor neuron degeneration**
Koji Yamanaka
Dept. Neuroscience and Pathobiology, Res. Ins. Env. Med. Nagoya Univ, Nagoya, Japan
- 4S02a-2 (11:10)** **Parkinson's disease seen from a viewpoint of mitochondria-lysosome communication**
Noriyuki Matsuda
Tokyo Metro. Inst. of Med. Sci.
- 4S02a-3 (11:30)** **Membrane trafficking: A new frontier in Parkinson's disease**
Takafumi Hasegawa
Dept Neurol, Tohoku Univ Grad Sch of Med
- 4S02a-4 (11:50)** **Traffic jam hypothesis: endocytic disturbance and Alzheimer's disease pathology**
Nobuyuki Kimura
Sect Cell Biol & Pathol, Dept AD Res, NCGG
- 4S02a-5 (12:10)** **Cross-talk between the endoplasmic reticulum and the plasma membrane mediated by the extended synaptotagmins.**
Yasunori Saheki^{1,2}
¹*Lee Kong Chian School of Medicine, Nanyang Technological University, Singapore*
²*Institute of Resource Development and Analysis, Kumamoto University, Kumamoto, Japan*
- 4S02a-6 (12:30)** **Recovery of lysosomal functions by the shutdown of ER-associated degradation and therapy of Mucopolysaccharidosis**
Atsushi Saito¹, Yosuke Osaki^{2,3}, Kazunori Imaizumi²
¹*Dept Stress, Inst Biomed Health Sci, Hiroshima Univ, Hiroshima, Japan*
²*Dept Biochem, Inst Biomed Health Sci, Hiroshima Univ, Hiroshima, Japan*
³*Dept Nephrol, Hiroshima Univ Hosp, Hiroshima, Japan*

Diverse functions of the reward system: from sleep regulation to executive function

Chairpersons: Masayuki Matsumoto *University of Tsukuba*
Kae Nakamura *Kansai Medical University*

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- Introduction (10:50)** Masayuki Matsumoto
University of Tsukuba
- 4S03a-1 (10:55)** **The role of primate striatum for decision making under different emotional context**
Kae Nakamura, Yasumasa Ueda, Masaharu Yasuda
Dept Physiol, Kansai Medical University, Osaka, Japan
- 4S03a-2 (11:18)** **Role of the striatal local network in environment-based behavioral switching**
Jun Kunitatsu^{1,2}, Okihide Hikosaka²
¹*Faculty of Med, Univ Tsukuba, Tsukuba, Japan* ²*National Eye Institute, NIH, MD, U.S.A.*

- 4S03a-3** Why do we fall asleep when bored - The gating of sleep by motivated behaviors
(11:41) Michael Lazarus
University of Tsukuba
- 4S03a-4** Why would you want to know? The neuronal mechanisms of uncertainty reduction in primates
(12:04) Ilya E Monosov
Washington University in St Louis
- 4S03a-5** Two axes of dopamine evaluation systems: reward and threat
(12:27) Mitsuko Watabe-Uchida
Harvard University, Cambridge, USA

Symposium 4S04a

10:50-12:50 Room 4 (3F 301)

Innovative researches for drug discovery and development ~ novel technologies have become clear throughout common functions between oligodendrocytes and Schwann cells

Chairpersons: Shingo Miyata *Division of Molecular Brain Science, Research Institute of Traditional Asian Medicine, Kindai University*
Tsuyoshi Hattori *Department of Neuroanatomy, Kanazawa University Graduate School of Medical Sciences*

- 4S04a-1** BIG1/Arfgef1 and Arf1 regulate the initiation of myelination by Schwann cells in mice
(10:50) Junji Yamauchi^{1,2}, Yuki Miyamoto^{1,2}
¹Laboratory of Molecular Neuroscience and Neurology, Tokyo University of Pharmacy and Life Sciences
²Department of Pharmacology, NICHD (Japan)
- 4S04a-2** The role of astrocytic CD38 for myelination and demyelination
(11:14) Tsuyoshi Hattori¹, Jureepon Roboon¹, Hiroshi Ishii¹, Mika Takarada¹, Dinh Thi Nguyen¹, Haruhiro Higashida², Osamu Hori¹
¹Dept. Neuroanatomy, Kanazawa Univ. Grad. Sch. Med. Sci., Kanazawa ²Res. Cent. Child Mental Dev., Kanazawa Univ.
- 4S04a-3** Towards understanding of novel molecular mechanisms underlying oligodendrocyte properties both in normal and pathological condition
(11:38) Yugo Ishino¹, Shoko Shimizu¹, Masaya Tohyama^{1,2}, Shingo Miyata¹
¹Div Mol Brain Sci, Res Inst Trad Asian Med, Kindai Univ, Osaka, Japan ²Osaka Pref Hosp Org, Osaka, Japan
- 4S04a-4** Axon initial segment: a key structure for CNS pathophysiology
(12:02) Keiichiro Susuki
Dept Neurosci, Cell Biol&Physiol, Wright State Univ, Dayton, USA
- 4S04a-5** Large-scale volume imaging of the myelinated nerve fibers with electron microscopy
(12:26) Nobuhiko Ohno^{1,2}, Tatsuhide Tanaka³
¹Dept Anat, Jichi Med Univ, Tochigi, Japan ²Div Neurobiol Bioinformatics, Nat Inst Physiol Sci, Aichi, Japan
³Dept Anat Neurosci, Nara Med Univ, Nara, Japan

Symposium 4S05a

10:50-12:50 Room 5 (3F 302)

From bench to bedside: Seamless development of therapy for neurological diseases

JSN Symposium

Chairpersons: Yoshitaka Nagai *Osaka University*
Sayaka Takemoto-Kimura *Department of Neuroscience I, RIEM, Nagoya University*

- 4S05a-1** Genetic Diseases Caused by Aberrant Splicing and Their Therapeutics
(10:50) Masatoshi Hagiwara
Dept. Anatomy and Dev. Biol., Kyoto Univ. Grad. Sch. of Med.

4S05a-2 Antisense correction of SMN2 splicing rescues SMA

(11:20)

Kentaro Sahashi

Dept. Neurology, Nagoya Univ, Nagoya, Japan

4S05a-3 Towards a systematic understanding and treatment of the sugar chain synthesis disorders, including Fukuyama muscular dystrophy, and Parkinson's disease

(11:50)

Tatsushi Toda

Department of Neurology, Graduate School of Medicine, The University of Tokyo

4S05a-4 Development of therapeutic strategies to repair neuronal network for the central nervous system diseases

(12:20)

Toshihide Yamashita

Dept. Mol Neurosci, Osaka Univ, Osaka, Japan

Symposium 4S06a

10:50-12:50 Room 6 (2F 201A)

The Confluence of Multi-modal/Multi-scale Imaging and Brain Science

Chairpersons: Yasuyoshi Watanabe *RIKEN Compass to Healthy Life Research Complex Program*
Yosky Kataoka *RIKEN Center for Biosystems Dynamics Research*

Introduction Yasuyoshi Watanabe

(10:50)

RIKEN RCH+BDR

4S06a-1 Multi-scale, multi-modal in-vivo imaging of neurodegeneration

(10:55)

Makoto Higuchi

Nat Inst of Quantum and Radiol Sci and Technol

4S06a-2 Multi-modal imaging of glial progenitor cells

(11:25)

Yosuke Kataoka¹, Yasuhisa Tamura^{1,2}, Satoshi Kume^{1,2}, Mitsuyo Maeda^{1,2}, Asami Eguchi^{1,2}, Mitsuo Suga²

¹Lab. for Cellular Function Imaging, RIKEN BDR, Hyogo, Japan

²Multi-Modal Microstructure Analysis Unit, RIKEN-JEOL Collaboration Center, Hyogo, Japan

4S06a-3 Translational PET Neuroimaging

(11:55)

Christer Halldin

Karolinska Institute

4S06a-4 The molecular and neural mechanisms of fatigue and chronic fatigue revealed by integrated multi-modal imaging technologies

(12:20)

Yasuyoshi Watanabe

RIKEN RCH+BDR

Symposium 4S07a

10:50-12:50 Room 7 (2F 201B)

Insight about higher brain functions on the cerebro-cerebellar network from collaboration between basic science and clinical research

Chairpersons: Takeru Honda *Tokyo Metropolitan Institute of Medical Science*
Hironori Nakatani *Dept Arts and Sciences, The University of Tokyo Cognition and Behavior Joint Research Lab., RIKEN CBS*

Introduction Takeru Honda

(10:50)

Tokyo Metropolitan Institute of Medical Science

4S07a-1 What are the neurological symptoms of A-T? How can we approach?

(10:55)

Setsuko Hasegawa

Dept Pediatrics and Developmental Biology, Tokyo Med and Dental Univ, Tokyo, Japan

- 4S07a-2**
(11:15) **Theory for explicit switch of cerebellar tandem internal models**
Takeru Honda
Movement Disorders Project, Tokyo Metropolitan Institute of Medical Science
- 4S07a-3**
(11:35) **The magnocellular red nucleus underlying coordinated limb movement**
Tomomichi Oya¹, Tomohiko Takei^{2,3}, Kazuhiko Seki¹
¹*Dept. of Neurophysiology, National Inst. of Neuroscience, National Center of Neurology and Psychiatry*
²*Dept. of Physiology & Neurobiology, Graduate School of Medicine, Kyoto University*
³*The Hakubi Center for Advanced Research, Kyoto University*
- 4S07a-4**
(11:55) **Non-invasive cerebellar stimulation to rearrange disrupted functional networks**
Kim van Dun¹, Mario Manto^{2,3}
¹*University of Hasselt* ²*Unite d etude du Mouvement (UEM), FNRS, ULB-Erasme Brussels Belgium*
³*Service des Neurosciences, UMon Mons Belgium*
- 4S07a-5**
(12:15) **A possible involvement of the cerebellum in expertise in a cognitive domain**
Hironori Nakatani^{1,2}
¹*Dept Arts and Sciences, The University of Tokyo* ²*Cognition and Behavior Joint Research Lab., RIKEN CBS*
- Discussion**
(12:35)